

SCORE FREE



PRIZES (PG. 11)

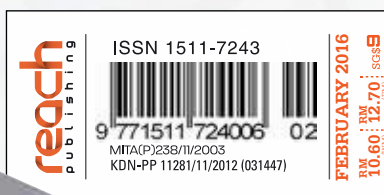
A DEFINITIVE GUIDE FOR EVERY END-USER

PC.com

VOLUME 16 ISSUE 10

**SPOTLIGHT
EXCLUSIVE!**

**PC.COM INTERVIEWS
AMD'S CHIEF
ARCHITECT**



TESTED

ASUS AIO PRO
SAMSUNG GEAR S2
MSI PHANTOM GS406QE
GARMIN VIRB X

LENOVO YOGA TAB 3 PRO PROJECTOR SPECTACULAR

GAMETIME

DIRT RALLY
GUILTY GEAR XRD -SIGN-
HOMEWORLD:
DESERTS OF KHARAK

CES 2016 REPORT

EXCLUSIVE REPORT FROM
OUR CORRESPONDENT AT
CES 2016 IN LAS VEGAS

REVIEWS

TECHNOLOGY

GAMING

IDEAS

YOGA 900

The laptop that adapts to you.

#Goodweird

Lenovo™



INTEL INSIDE®. EXTRAORDINARY PERFORMANCE OUTSIDE.
LENOVO YOGA 900 IS POWERED BY
6TH GENERATION INTEL® CORE™ i7 PROCESSOR.



LAPTOP



TENT



TABLET



STAND

FIND OUT MORE: ☎ 1800 88 7148 🌐 www.lenovo.com/my 📘 www.facebook.com/LenovoMY 🐦 www.twitter.com/Lenovo_MY

Available at:
LENOVO EXCLUSIVE STORES: Aidea.com Technology - Jln Sultan Sulaiman, K. Terengganu • Brightstar Computer S/B - Plaza Low Yat • Essential Action S/B (D-Mobile) - Plaza Low Yat • FCC Retail S/B - Digital Mall; MidValley • Grex Multimedia - Skudai Parade, Johor; Danga City Mall, Johor
• IT Comp Sales & Services S/B - The Mines Shopping Centre • Mind Maker S/B - ICT Komtar, Penang • Mobility Square S/B - One Utama • Pro Trade Marketing - Plaza Alam Sentral • SNS Network (M) S/B - Ipoh Parade, Ipoh; Plaza Low Yat

©2015 Lenovo. All rights reserved. Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation. Every effort has been made to check for accuracy. Lenovo will not be liable for any inadvertent error which may occur in editorial or typography in this advertisement. All images are for illustrative purposes only.

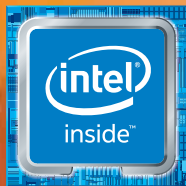
Lenovo Technology Sdn. Bhd. (68509B-H)

YOGA Tab 3 Pro

Any surface can be a cinema.

#Goodweird

Lenovo™



INTEL INSIDE®. BETTER EXPERIENCES OUTSIDE.
LENOVO YOGA TAB 3 PRO IS POWERED BY
INTEL® ATOM™ X5 PROCESSOR.



FIND OUT MORE: ☎ 1800 88 7148 🌐 www.lenovo.com/my 📘 www.facebook.com/LenovoMY 🐦 www.twitter.com/Lenovo_MY

Available at:
LENOVO EXCLUSIVE STORES: Aides.com Technology - Jln Sultan Sulaiman, K. Terengganu • Brightstar Computer S/B - Plaza Low Yat • Essential Action S/B (D-Mobile) - Plaza Low Yat • FCC Retail S/B - Digital Mall; MidValley • Grex Multimedia - Skudai Parade, Johor; Danga City Mall, Johor
• IT Comp Sales & Services S/B - The Mines Shopping Centre • Mind Maker S/B - ICT Komtar, Penang • Mobility Square S/B - One Utama • Pro Trade Marketing - Plaza Alam Sentral • SNS Network (M) S/B - Ipoh Parade, Ipoh; Plaza Low Yat

©2015 Lenovo, all rights reserved. Lenovo and the Lenovo logo are trademarks or registered trademarks of Lenovo in the United States, other countries, or both. Ultrabook, Celeron, Celeron Inside, Core Inside, Intel, Intel Logo, Intel Atom, Intel Atom Inside, Intel Core, Intel Inside, Intel Inside Logo, Intel vPro, Itanium, Itanium Inside, Pentium, Pentium Inside, vPro Inside, Xeon, Xeon Phi, and Xeon Inside are trademarks of Intel Corporation in the U.S. and/or other countries. Android is a trademark of Google Inc. Every effort has been made to check for accuracy. Lenovo will not be liable for any inadvertent error which may occur in editorial or typography in this advertisement. All images are for illustrative purposes only.

Lenovo Technology Sdn. Bhd. (685098-14)

CONTENTS



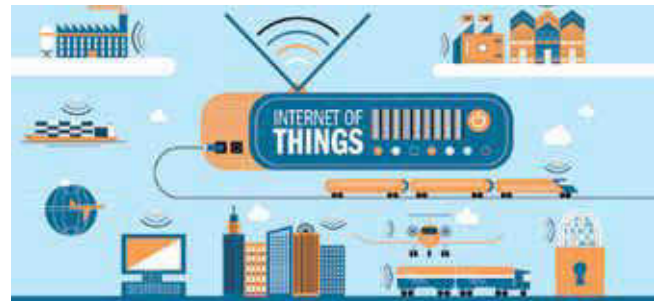
CES 2015 SPECIAL REPORT

12 WIRE

- 14 The International CES 2016 Special Report
- 18 New 64-bit ARM CPU for servers from AMD
- 19 New convertible from Acer
- 20 World's thinnest convertible laptop from Lenovo
- 21 Free printers given away to schools
- 24 New gadgets from HTC for better health tracking



- 26 Nikon to introduce 360° video camera
- 27 New Ultrabook for gamers from Razer
- 30 New version of Galaxy Note5 arrives in Malaysia
- 31 New programme to deliver better VR experiences
- 34 New Chip to Support 4K Blu-Ray
- 35 Aid for the Needy
- 37 Improved HTC Vive set to launch in April



38 BIZ2.0

- 38 Fujitsu To Split Up
- 40 Intel buys Altera for US \$16.7 billion
- 45 Qualcomm switches to Samsung for future production
- 46 Music Industry Revenue Set To Fall This Year



49 GIZMOS

58 TESTED

- 60 Lenovo Yoga Tab 3 Pro
- 62 Dell UP3216Q Monitor
- 64 Asus Zen AiO Pro Z240IC
- 65 Sony NW-ZX100
- 66 Microsoft Lumia 950 XL
- 68 Samsung Gear S2
- 69 Fujifilm Instax Mini 70

OKI

JAPAN • 1881

New MFP

MB472dnw / MB492dn
ES5162



New Printer

B412dn / B432dn / B512dn
ES4132dn

- Fast print speed up to 45ppm
- Duplex and network ready, optional Wireless
- Apple AirPrint and Google Cloud Print ready
- Banner printing up to 1.3m long
- Secure printing to protect confidential documents



High performance A4 mono printer & A4 mono multifunction printer for more demanding user



TOLL FREE NO.:
(9am-6pm, Mon-Fri)

1-800-88-1177

www.oki.com.my

CONTENTS



70 TESTED (CONT.)

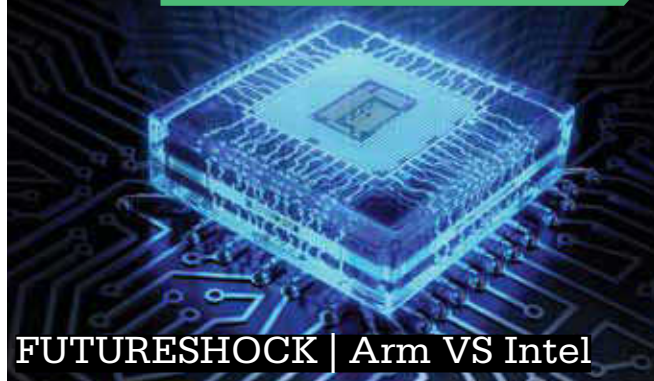
- 70 ASUS Zenfone 2 Laser Z011D
- 72 Asus Strix Raid Pro 7.1 PCI-E Sound Card
- 74 MSI B150 M Night Elf
- 76 MSI Phantom GS406QE
- 78 Cooler Master Mastercase 5
- 80 Asus E3 Pro Gaming V5
- 82 Garmin VIRB X

PRINTATHON



79 SHOWDOWN

89 COVER STORY



FUTURESHOCK | Arm VS Intel



95 TECH 101



103 GAMETIME

- 100 GameTime News
- 106 DIRT Rally
- 108 Guilty Gear Xrd -SIGN-
- 110 Lightning Returns: Final Fantasy XIII
- 111 Homeworld: Deserts of Kharak
- 114 Dragon's Dogma: Dark Arisen



**PC.COM
INTERVIEWS
RAJA KODURI
AMD CHIEF ARCHITECT**

126 SPOTLIGHT **EXCLUSIVE!**

SHARP

AQUOS

Quattron Pro



REALITY IS HERE

With



Google Cast

androidtv



Android TV, Google Cast, Google Play and other marks are trademarks of Google Inc.

The Android robot is reproduced or modified from work created and shared by Google and used according to terms described in the creative commons 3.0 Attribution License.

*The result of our laboratory testing using a test pattern with 7,680 x 4,320 pixels. The product is not using an 8K LCD panel. 8K picture (video) from an external input, cannot be played back and 8K broadcasting cannot be received.

PUBLISHED BY

Reach Publishing Sdn Bhd, No. 15-3, Block F1, Jln PJU 1/42, Dataran Prima,
46500 Petaling Jaya, Selangor. Tel: 03-7880 2611/22 Fax: 03-7880 1971
Website: liveatpc.com FB: facebook.com/liveatpc

PUBLISHER / MANAGING EDITOR

Selva Rajan

EDITORIAL

editor.pcdc@reach.com.my

Editor-In-Chief Vinodhani Nair K

Editor Ajith Ram

Writers Matthew Yap, Sia Zhen Ning,
Noraisyah

Singapore Correspondent Lee Ser Wei

Contributors Din, Abbi Li

Senior Graphic Designer Heirul Mohd Kamel

Graphic Designer Muhammad Syafiq Izwan

Design Interns Jan Shen, Ho Yan Hong

ADVERTISING

sales@reach.com.my

Head of Sales Sabrina Choy

Advertising Manager Sean Yap

Business Development Manager Connor Tan

Marketing Executive Nain Mazlan

Advertising Executive Shazmyir Rahman

CIRCULATION

circulation@reach.com.my

TAIWAN REPRESENTATIVE

JK Media Co, 10F-4, No. 43, Songjiang Rd., Zhongshan District, Taipei City, 104, Taiwan. Contact: Juliet Tseng
Tel: +886-2-25065637 ext.11 Fax: +886-2-25065390 Email: juliet@jkmedia.com.tw

PRINTER

Kam Heng Sdn Bhd (620143-W), 11,13 & 15 Jalan SR 4/18, Serdang Raya, 43300 Seri Kembangan, Selangor

OFFICIAL MAGAZINE FOR

IT World, Sunway Pyramid, Digital Mall, Fitness First, Digital Bay,
Digital One, Landmark IT Mall, Mine Shopping Fair, Hatten Square

AVAILABLE AT

Starbucks Coffee, MPH Bookstore, Open University, Dome, Popular,
Acer Tele Dynamics, The Coffee Bean, MyNews.com, Maxis

PICTURE CREDITS

All images used on the cover and PC.com GameTime are owned and copyrighted to their respective owners

Find us on:



www.liveatpc.com



AVAILABLE ONLINE



OFFICIAL MEDIA
PARTNER



WINNER



ONLINE PARTNER



PROTECTED BY



All material published in PC.com is copyright and may not be reproduced in any form without permission from the publisher. The views expressed by writers are their own and may not necessarily be those of the publisher or Editor. Contributed articles are welcome and, if selected for publication, will be subject to editing for style and clarity.



EOS M3

M-powered DSLR-like performance

The new EOS M3 is massive in performance even as it sits comfortably within your hands. Add to this greater control with the versatility of over 70 EF lens line-up options & EOS-compatible accessories, and the EOS M3 is truly a lifestyle empowered.



Camera colour options: ○ ●

New **EOS M3 Kit**
(EF-M18-55 IS STM)
RRP: RM 2,399
(Inclusive of 6% GST)

New **EOS M3 Kit II**
(EF-M18-55 IS STM &
EF-M55-200 IS STM)
RRP: RM 3,299
(Inclusive of 6% GST)



24.2 MEGA
PIXELS
CMOS

Hybrid
CMOS **AF III**

ISO
12800

M
Manual Control

Wi-Fi / NFC

EOS
System
Accessories

Made in
JAPAN

*Specifications are subject to change without notice.
* EF-M22mm f2 STM sold separately*

Insist on an original warranty issued by Canon Marketing Malaysia.

CANON MARKETING (MALAYSIA) SDN BHD (158419-H):

HEAD OFFICE & SHOWROOM: Block D, Peremba Square, Saujana Resort, Section U2, 40150 Shah Alam, Selangor Darul Ehsan, Malaysia.

Nationwide Customer Careline: Tel: 1800-88-2000 **General Line:** Tel: 03-7844 6000 Fax: 03-7847 7222 **Website:** www.canon.com.my

BRANCHES:

• **PENANG** Tel: 04-238 3838 • **IPOH** Tel: 05-255 6311 • **MALACCA** Tel: 06-283 8331 • **JOHOR BAHRU** Tel: 07-355 4777
• **KUANTAN** Tel: 09-517 3688 • **KUCHING** Tel: 082-575 188 • **KOTA KINABALU** Tel: 088-233 800

canoncamerasia

CANON IMAGE SQUARE:

• **SURIA KLCC** Tel: 03-2166 2382
• **LOW YAT** Tel: 03-2141 8188
• **MID VALLEY** Tel: 03-2282 7037
• **SUNWAY PYRAMID** Tel: 03-5633 1818
• **PENANG** Tel: 04-262 3191

CANON EOS BOUTIQUE:

• **PENANG** Tel: 04-228 8858
• **SELANGOR** Tel: 03-5612 0337

A WORD FROM THE EDITOR



There is currently a race going on in the colourful realm of inkjet printers. To a wizened observer of the printing industry, this race might seem more like an endless marathon rather than a sprint.

I am referring to the race to claim the lowest print cost per page or maximum efficiency. Just over a decade ago, the average inkjet printer would have been able to print less than a hundred pages of colour before all the ink cartridges required replacement. And cartridges those days cost almost as much as the printer itself.

Fast forward to today, printer manufacturers are busy touting ever lower cost per printed page with claims running into thousands of pages per cartridge.

But what exactly is in each printed page? How much of each printed page is coloured in ink while the rest is empty space?

In 2009, the International Organisation for Standardisation (ISO) published a standard for determining the ink cartridge yield for colour inkjet printers and multifunctional devices. This standard prescribes a test method that manufacturers and test labs can use to determine inkjet cartridge yields. It also standardises the method of describing the yield of cartridges in documentation supplied to the consumer by the manufacturer.

The problem is that very few printer manufacturers actually abide by the strict ISO requirements. Even today, too many manufacturers use their own definition of what a 'typical' printed page should look like to define the printing capacity of each printer.

And this presents a real problem for the consumer. At the same price range, the consumer is faced with a bewildering array of printer models that claim printing capacities from a few hundred to thousands of pages. It might seem like a marathon where some runners have just turned the first corner while others are at the finishing line.

It would be good for the consumer and even the printing industry if there was a clear definition of an average page for both colour and black prints. Maybe something similar to an optometrist's chart with a set of words and images that are identical worldwide.

But such a precisely defined standard seems a long way away. Until then, we will have no choice but to watch this endless 'printathon.'

Ajith Ram | **PC.com Editor**

ERRATA:

Canon G Series Printers

In our January edition, we had mentioned that the printer is capable of borderless printing. We would like to clarify that we meant borderless photo printing.

Dell UP3216Q Monitor

We have reprinted the review of the Dell UP3216Q due to some errors in the previous one.

onlineshopper?

Keep your money safe
while shopping online.

ESET's Banking & Payment
Protection keeps your passwords
and personal details secure,
so you can enjoy the Internet.

Whatever you do online, relax:
ESET has your Internet
security covered.

Find out more:
www.eset.com/my



ENJOY SAFER TECHNOLOGY™



**WRITE
& WIN!**



Write In And Win!

Stand a chance to win

A MYSTERY GIFT!

Send your mail to editor.pcdc@reach.com.my and please be sure to include your full name and address for our record

**LETTER
OF THE
MONTH**

Mailbox

From

Celine

How can I build my own private cloud?

Reply

To

Celine

From

PC.com

Hi Celine,

There are two ways you can have your own private cloud. If you want a local private cloud, you can use MyCloud from Western Digital which will allow you to store the data in your home or office. The other option is to use an internet-based cloud service like Google Cloud or Microsoft OneDrive.

**How can I get my Windows activation key?
I have lost the original disc.**

Senthil

Microsoft makes it quite hard to get the original product key as it is stored in a non-human readable format in the Registry. We recommend using NirSoft ProduKey which can be downloaded from the link below.

www.nirsoft.net/utils/product_cd_key_viewer.html

**How can I change the voice levels in a video file
without affecting the level of the volume?**

Melvin

If the audio track is already part of the video like an AVI file, your only option will be to use an application like Adobe Premiere or Corel Videostudio. If the audio track is available separately, you can use a free pure digital audio editing tool such as Audacity.

STALK US ON



<http://facebook.com/pcdotcom>



<http://www.twitter.com/pcdotcom>

DRAGON BLAZE Chapter 3



Dragon Blaze is a game created on a massive storyline. As players progress through the game, they are taken through many chapters of an in-depth story filled with adventures, rescue missions and of course the romance between key characters of the game.

Gamevil is running a **CONTEST** for PC.COM readers and Dragon Blaze players.

Prizes



1st
500
Rubies



2nd - 5th
300
Rubies



6th - 10th
200
Rubies



11th - 20th
100
Rubies

To participate, go to Official Dragon Blaze Facebook page (facebook.com/DragonBlazeGAMEVIL) and look out for the PC.COM article "5 Reasons to Love Dragon Blaze" that is being shared on the wall. Participants will need to submit the screenshot of their Dragon Blaze character and say why they love Dragon Blaze inside the comment section.

Terms & Conditions:

1. This contest is only for Asia Server players.
2. Incomplete submissions will be disqualified.
3. Judges' decision is final.
4. Contest ends 29 February 2016.

- 18 -
NEW 64-BIT ARM CPU FOR
SERVERS FROM AMD

- 20 -
WORLD'S THINNEST
CONVERTIBLE LAPTOP FROM
LENOVO

- 26 -
NIKON TO INTRODUCE 360°
VIDEO CAMERA

- 33 -
NEW AMD GPU PROMISES
MORE THAN DOUBLE THE
PERFORMANCE

- 30 -
IMPROVED HTC VIVE SET TO
LAUNCH IN APRIL

14

THE INTERNATIONAL
CES 2016 SPECIAL REPORT



Wire

Hooking you up to the latest.

18



20



26



30



GET YOUR TECH FIX ON MOBILE

PC.com is also available for the mobile medium, coming in bite-sized MMS news twice a week. We cover the latest tech news, hottest gadgets, product reviews and more. It is currently available for Maxis, Celcom and Digi users.



maxis.



Price: RM1/week

Frequency: Twice a week

Language: English

Availability: Maxis, Celcom, Digi

Follow the instructions below to subscribe:

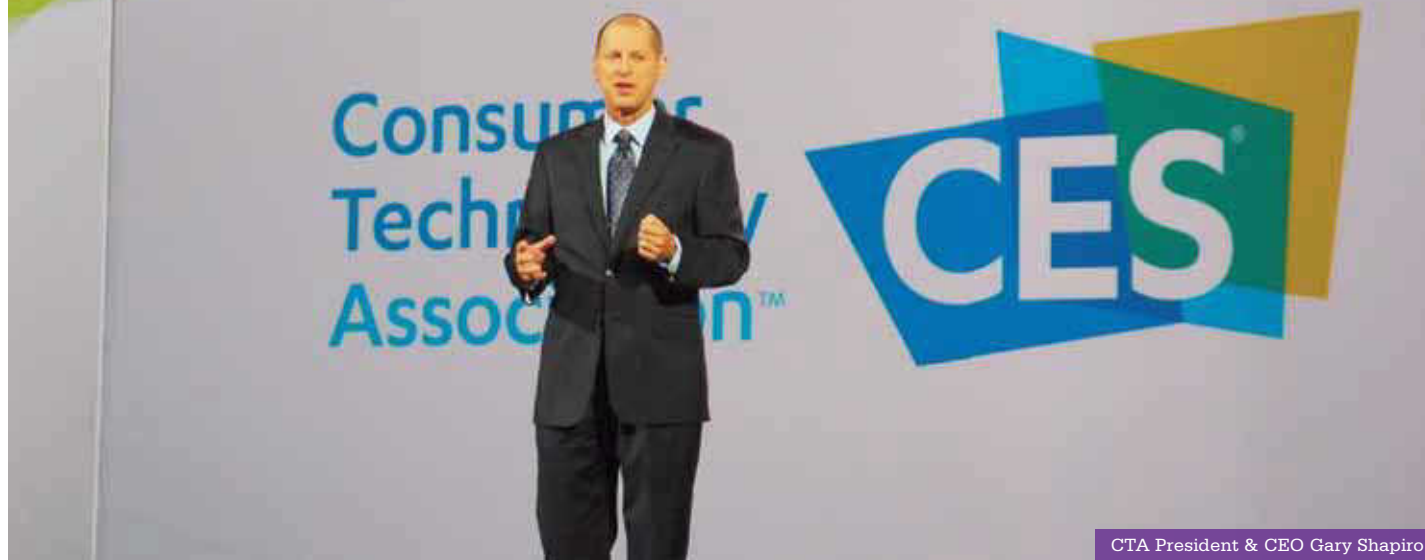
Maxis & Digi: SMS **"ON PC"** to **23238**

Celcom: SMS **"ON PC"** to **27272**

IoT is Alive & Kicking

Consumer Technology Association (CTA) showcases the many possibilities of IoT, while expecting double digit growths in 2016 from 4K UHD TV, wearables, and drones

Compiled by Vino Nair



CTA President & CEO Gary Shapiro

Walking into the CES 2016 show floor is almost like strolling like a kid into a toy store; it is awe-inspiring and will definitely bring back the wonders you feel when you see a sci-fi movie. Suddenly you feel everything is possible – talking to your TV or home appliances, self-driving cars, flying a plane... bet even a flying car doesn't seem so far-fetched here. The Internet of Things (IoT) is definitely a very real reality.

That is what CES does every year, push the boundaries of innovations and wow the world over with its discoveries. The global stage to be for every big and small company, CES is the first technology show of the year that more or less sets the pace of the things to come or expect for the year to come. And this year is no different.

A key takeaway from the CES this year is that the ever-expanding adoption and continued growth of innovations comprising the Internet of Things (IoT) will help lead the U.S. consumer technology industry to a record-setting US\$287 billion (bn) in retail

revenues (US\$224bn wholesale) in 2016, according to the Consumer Technology Association (CTA)™, formerly the Consumer Electronics Association (CEA)®.

CTA unveiled the latest version of its semi-annual industry report, U.S. Consumer Technology Sales and Forecasts, on the eve of CES® 2016 - the world's gathering place for all who thrive on the business of consumer technology, running early in January in Las Vegas, USA.

"2016 will be another great year for consumers. As more products become connected, we'll be able to manage our lives in ways that weren't possible even just a few years ago," says Gary Shapiro, president and CEO, Consumer Technology Association. "The exponential growth of the IoT and the lightning-fast speed of innovation are key reasons we'll see such strong growth across so many tech categories. Highly sophisticated technology is becoming more affordable and accessible – improving our safety, productivity and entertainment."

CTA reveals: "The exponential growth of the IoT and the lightning-fast speed



of innovation are key reasons we'll see such strong growth across so many tech categories. Highly sophisticated technology is becoming more affordable and accessible – improving our safety, productivity and entertainment.”

Well-established technologies including smartphones, televisions and laptops will continue to drive U.S. retail revenues and lead to 1% industry growth in 2016. While these categories – together with tablets and desktops – account for 51% of the consumer tech industry's revenue, the catalysts for industry growth are newer innovations such as wearables, virtual reality and drones.

WHAT'S IN STORE FOR THE INDUSTRY

While CTA forecasts overall industry growth in 2016, the strong household penetration of mature categories, such as tablets, televisions, PCs and laptops, and continued industry innovation are declining or slowing growth and placing pressure on margins for some manufacturers and retailers.

For example, despite a projected 65% increase in revenue for Ultra High-Definition TVs in 2016, CTA expects revenue for the

overall TV market to not increase this year.

“Aggressive competition, longer product replacement cycles and disruptive innovation replacing legacy products create financial challenges for segments of our industry,” notes Shapiro. “However, we believe newer categories, continuing innovation and improving economic conditions provide additional cause for industry optimism.”

CTA's consensus forecast reflects U.S. factory sales to dealers and covers more than 300 tech products. The semi-annual report serves as a benchmark for the consumer technology industry, charting the size and growth of underlying categories.

IOT DRIVES INDUSTRY GROWTH

What also amazed us at CES 2016 is the fact that IoT is very much alive and is driving industry growth – from Video and Audio, Smart Home, Wearables, Smartphones, Tablets, Televisions, Laptops, Drones, right down to Virtual Reality (VR). While some parts of the world still question the feasibility of IoT, in CES 2016 it is as real as it can get.

Some interesting show highlights were the keynotes by prominent industry player

such as Intel, Volkswagen, Netflix, FitBit, NBCUniversal, Samsung and YouTube.

Intel kicked off the keynotes with art and a concert followed by the company's CEO Brian Krzanich asking the audience to fist pump the lit bracelets that were on each chair. Intel had it all, including next-generation drones, robots and more.

Krzanich announced a number of new innovations that incorporate Intel's technology, including the Oakley Radar Pace smart eyewear, featuring a real-time, voice-activated coaching system designed to improve and enhance athletes' training and performance and the Typhoon H Drone, powered by Intel's RealSense technology to avoid collisions in real time.

Moving on to the automakers, Dr. Herbert Diess, chairman, board of management, Volkswagen Passenger Cars, took the keynote stage later on and addressed the company's recent diesel issue, stating that “we are doing everything possible to make it right,” and discussed the company's focus on creating a “New Volkswagen” and redefining and re-engineering every aspect of VW.

Dr. Diess then announced the new e-Golf Touch, a zero emissions, all-electric

Monster Founder, Noel Lee, presenting the Boom Box



Intel CEO Krzanich with global music sensation AR Rahman during his keynote address



YouTube's Kyncl during his keynote address

car, as "a smartphone on wheels" that will be available before CES 2017. Additionally, the electric BUDD-e, a unique concept for a long-distance electric vehicle, was unveiled as the "first car in the Internet of Things." Users will be able to connect the smart home with the smart car through partnership announcements with LG and startup company Door Bird.

Another noteworthy keynote address was from WP Hong, president of Solution Business Unit, Samsung SDS. During his address, Hong stated that the Internet of Things (IoT) is already here, but many companies need to collaborate to make it work. Samsung is labouring to ensure all of the devices the company produces connect to the Internet.

The company is building IoT innovation that is in-sync with people's daily lives by offering a new category of IoT home appliances that connect families and make life easier. Samsung showed its home appliance connected line including the Family Hub Refrigerator and the FlexDuo stove with Wi-Fi.

"The age of the Internet of Things has begun," Hong said. "It will be a success, but only if we get the fundamentals right:

openness, interoperability and close industry collaborations."

YouTube's chief business officer Robert Kyncl, in his keynote noted that the last time he spoke on the CES keynote stage four years ago, he predicted that 90% of all Internet traffic would be video traffic by the year 2020. Cisco data now predicts that video will reach 9% of global Internet traffic by 2019, a full year ahead of schedule.

He also discussed the top reasons video will ultimately win the decade, including the quality of video - data speeds are faster, sound is better and screens are bigger - and the increased diversity of content. Kyncl announced that YouTube's premium subscription service, RED, will begin producing original content to follow suit with Netflix and Amazon. He added that new shows and movies will be available, as well as a music service. Kyncl also announced a partnership with GoPro to create the first commercial 3D/360 camera called Odyssey. Odyssey uses 16 GoPro cameras to capture VR video.

IN FULL FORCE

With more than 3,600 companies launching products across more than 2.4 million net

square feet of exhibits - the largest show floor in CES history, companies big and small use CES to showcase products and solutions that covers the latest in sensors, 3D printing, IoT, wearables, virtual reality and robotics all captured in the official highlight reel.

MAJOR PRODUCT DEBUTS INCLUDED:

Samsung – KS9500 SUHD TV, highlighting quantum dot technology, High Dynamic Range (HDR) and 4K Ultra HD resolution capabilities with the world's first bezel-less design.

Bosch – In-Vehicle Audio/Video System with Personalised Haptic Touchscreen, including haptic control so drivers can feel the buttons on the screen and receive touch feedback.

Casio – Smart Outdoor Watch WSD-F10 powered by Android Wear, the first watch with a built-in microphone that is water resistance up to 50 meters and features a dual layer display structure that meets U.S. military standards.

FitBit - FitBit Blaze, a new smart fitness watch designed to balance fitness and style.

GoSun – The E-Grill fries, roasts and bakes, powered by an electric heater or a solar panel that captures solar energy to cook after the sun goes down.

Hisense – 2016 line of TVs with ULED technology, which is three times

brighter than OLED and has quantum dot technology.

Kia – The Drive Wise combines the current advanced driving assistance system (ADAS) with telematics, bringing faster and more accurate assistance for drivers.

LG – LG Signature OLED TV, featuring picture-on-glass design, a 2.57 mm panel, Dolby Vision technology, and an integrated speaker system with a built-in woofer.

MobileHelp – Next-generation remote health medical alarm that pairs with smartphones.

Monster – The Blaster boombox, which produces bi-directional sound with full and deep bass.

Panasonic – DX900 4K LED TV and UB900 UHD Blu-ray Player, as well as the Technics SL-1200 high-fi turntable.


Qualcomm – Snapdragon 602A automotive processor, which will be used in 2017 Audi cars, allowing for high bandwidth in-vehicle Internet connectivity.

Sony – 4K HDR TV (X930D series) features new slim backlight drive technology, voice recognition in 40 languages, Sony's exclusive Content Bar and ultra-thin design.

StreamTV – Unveiled Ultra-D 4K Glasses-Free technology.

TCL – QUHD TV with quantum dot, local dimming, IDP engine and HDR technology offering a wider color gamut.

Valeo – Les Lunettes by Valeo are connected, technology-packed glasses that improve driver visibility day and night by reducing glare from different sources.

ZTE – GrandX3, carried by Cricket, features 5.5" HD infinity edge display, Qualcomm 1.3 GHz Quad-Core Processor, 16 GB ROM (expandable to 64 GB) and LTE speeds. 

Zooby baby monitoring camera in a plush toy with its founder



ARM Twisting

New 64-bit ARM CPU for servers from AMD


AMD recently launched the Opteron A1100 System-on-Chip (SoC), formerly codenamed “Seattle” targeted at datacenters.

“The ecosystem for ARM in the datacenter is approaching an inflection point and the addition of AMD’s high-performance processor is another strong step forward for customers looking for a datacenter-class ARM solution,” said Scott Aylor, Corporate Vice President and General Manager, Enterprise Solutions, AMD.

The AMD Opteron A1100 Series SoC is the first 64-bit ARM Cortex-A57-based platform from AMD. It has up to eight ARM Cortex-A57 cores with 4MB shared Level 2 cache and 8MB of shared Level 3 cache. It also has two 64-bit DDR3/DDR4 channels supporting up to 1866 MHz ECC memory.

The Opteron A1100 SoC is powering enterprise-class systems

from SoftIron with its Overdrive3000 system for developers. AMD is also collaborating with Silver Lining Solutions (SLS) to integrate SLS’

fabric technology in dense server designs targeted at streaming, web, and storage workloads for cloud and hyperscale datacenters. 



Fraudulent Internet


Malicious search engine optimisations found

Akamai Technologies Inc. has issued a new web security threat advisory from the company’s Threat Research Division. Threat Research has identified a sophisticated search engine optimisation (SEO) campaign that uses SQL injections to attack targeted websites.

Affected websites will distribute hidden HTML links that confuse search engine bots and erroneously impact page rankings. When searching the internet for the HTML links that were used as part of this campaign, Threat Research identified hundreds of web applications containing these malicious links. When searching for a combination

of common words such as “cheat” and “story”, it was apparent that the “cheating stories” application appeared on the first page of the leading search engines.

Search engines use specific algorithms to determine page rankings and indexing for sites on the

web, and the number and reputation of links that redirect to the web application influence these rankings. The SEO attackers created a chain of external links that direct to stories of cheating and infidelity on the web to mimic normal web content and impact search engine algorithms. 



A Bit of Danish

New phone for selfie lovers

Oppo has launched the F1, the first product in the newly announced F series to the Malaysian market and introduced Nora Danish as the selfie ambassador of F1. Nora has over 2.9 million followers on her Instagram account.

The F1 features a standout 8MP front-facing selfie camera that comes with a photography platform and software specially designed to capture Selfies. It costs RM1,198.

The Oppo F1 also features an 8MP front camera, wide f/2.0 aperture lens and a 1/4-inch sensor, allowing more than 44% of light to enter the camera as compared to a f/2.4 aperture lens. F1's built-in 'Beautify 3.0' feature comes with 3 different beautifying modes along with 8 filters to remove blemishes and highlight

facial features. The Oppo F1 also comes with a 'Screen Flash' function which is useful in a low light environment as it

automatically catches and fills the light onto users' faces as if they are taking the photo in daylight. **PC**



Ace in the Hole

New convertible from Acer

Acer Malaysia has introduced the new Aspire R 14 powered by the latest Intel processor for better office, home and entertainment usage.

The Acer Aspire R 14 can be transformed into four different modes for a variety of needs, making it easier to use and perform at work or play. Its flexible and sturdy dual-torque hinge allows easy transition into four modes – notebook, display, tent and pad.

The Aspire R 14 is manufactured using soft touch NIL (Nanoimprint Lithography) and offers a soft tactile feel. The Aspire R 14 is compatible with the latest wireless networks that use MU-MIMO technology to serve more devices simultaneously allowing up to 2-times faster download, smoother streaming and better browsing experience. It is also equipped with full USB 3.1 Type-C support. Also found in the Aspire R 14 is the Acer Bluelightshield which protects the eyes by reducing blue light emission from the screen. The Acer Aspire R 14 is priced at RM2,899 and will be available for purchase now. **PC**



Asus Motherboard Targets Gamers


New ROG motherboard has pre-installed cooling block

Asus has introduced a new motherboard based on Intel's Z170 which comes with a factory-installed CrossChill EK hybrid cooling block from EKWB for the power delivery.

The Maximus VIII Formula platform belongs to the Republic of Gamers (ROG) family and is intended for enthusiasts with custom-built liquid cooling systems as well as for demanding gamers. For this model, Asus and known water-cooling firm EKWB has teamed up to combine resources.

According to Asus, the CrossChill EK can reduce temperatures by up to 23°C when in a cooling loop. This has potential benefits for overclockers or users who like cool and quiet systems.

Since the Maximus VIII Formula is intended for high-end gaming

machines, it has several storage connectors, including one U.2 port for SSDs, one PCIe 3.0 x4 M.2 connector for SSDs), two SATA Express connectors and eight SATA 6Gbps ports for storage devices. 




This is Beautiful

World's thinnest convertible laptop from Lenovo

Lenovo is bringing out the Yoga 900S. According to the company it is an ultraportable convertible laptop.

It is lighter than previous models at 12.8 mm and 999g with a carbon fibre construction. The Windows 10 laptop features up to 10.5 hours of video playback. The convertible laptop's 360-degree watchband hinge has four modes. It comes with the Intel Core m7 processor.

The laptop also includes Dolby Audio Premium for crisp sound and optional QHD screen (2560x1440) for crystal clear resolution. It also includes an optional active pen so artists and note-takers alike can unleash their doodles and to-do lists, or annotate webpages on the Microsoft Edge browser using the touch screen. 



lenovo

Vehicles Talk to Drones

Ford develops drone-to-vehicle technology

Ford and drone-maker DJI are hoping to drive innovation in smart drone-to-vehicle software with DJI Developer Challenge. Ford and DJI are imagining a world in which vehicles and drones become more capable and efficient working together, and are announcing a challenge to develop the software to make that possible.

The DJI Developer Challenge is designed to create a rapidly deployable surveying system for use by the United Nations in emergency zones. Future applications could include agriculture, forestry, construction, bridge inspection and other work

These types of mobility innovations are part of Ford Smart Mobility. The technology

could allow United Nations first responders to earthquakes or tsunamis to quickly deploy drones able to survey and map hardest-hit

areas – all from the cab of an F-150.

The challenge winner will receive US \$100,000. **PC**



Charity Matters

Free printers given away to schools

Ricoh recently sponsored the 2015 Kem Cerdik Cukai (KCC) by handing organisers a total of 38 printers, worth over RM 20,000, at a handing over ceremony held at the Malaysian Tax Academy.

The event was attended by YBhg. Dato Abdul Aziz bin Hashim, Deputy Chief Executive Officer (Management) Lembaga Hasil Dalam Negeri Malaysia (LHDNM), Tuan Haji Adzhar Sulaiman, Director of Akademi Percukaian Malaysia, Muhammad Najib bin Ahmad, Assistant Director of the Ministry of Education (MOE), and Mr. Nick Tan, General Manager of Marketing of RICOH.

The camp was attended by over 200 students, all of whom were either from lower or higher 6th formers, and 50 teachers. Participants were privy to an interactive workshop

conducted by Ricoh on its 3D printing technology which comprised of its applications, current trends, and industry landscape.

Ricoh was among the main sponsors of the camp which was a joint effort between the Ministry of Education (MOE) and Lembaga Hasil Dalam Negeri Malaysia (LHDNM). **PC**



TRENDS 2016 (IN) SECURITY EVERYWHERE

"Security is no longer a concern for a small number of people - increasingly it is something that we all have to think about."

It's clear now that with ongoing advances in technology and the rapid growth in the number of devices that connect to the internet, more and more people are at risk of experiencing or being targeted by a cyberattack.

The same applies to all types of businesses, industries and sectors. Consequently, security is no longer a concern for a small number of people - increasingly it is something that we all have to think about.



This development is discussed in ESET's Trends for 2016: (In)Security Everywhere report, which has been produced by ESET's Research Laboratories.

The paper includes a review of the most important events of the past 12 months and

outlines trends in cybercriminal activity and cyberthreats for the upcoming year.

The researchers' predictions, which are based on their constant monitoring of the security landscape and its subsequent analysis, range from the mundane to the most complex matters.

"Taking into account discussion and examination of what has happened in technology, it is difficult to sum up everything in one phrase," the authors state in the introduction. "New technologies, attack reports, new malware families, and security flaws with a global impact: the speed at which these follow one another makes security an increasingly important challenge for businesses, enterprises, governments and users around the world."

The topics covered in the Trends for 2016: (In)Security Everywhere report include:

- **The Internet of Things (IoT) and the interconnectivity of all things, which highlights the importance of securing devices like wearables before being connected**
- **The evolution of ransomware, which has changed its focus from blocking files to attacking complete devices**
- **Targeted attacks and cyberespionage as potential 'weapons of the future'**
- **Globalization of crimeware and massive campaigns, with the fight against cybercrime as a key element**
- **Haxposure, the risk of corporate data exposure and its implications**
- **The next steps in mobile security and future defense strategies**
- **The new security and privacy features of Windows 10**
- **Critical infrastructures with exposed systems, and industries - such as healthcare - becoming the targets of attacks**



- **Personal data protection laws from around the world and the need for joint efforts among governments, companies and users**
- **The landscape of cyberthreats to children and young people on the web: sexting, grooming and cyberbullying**

All in all, the number of devices and technologies keeps growing as well as the challenges people face to keep their information secure.

Therefore, it is important to emphasize the role of governments and security agencies to enact laws that support the safe and secure development of new technologies, by defining standards and rules to respect privacy, and by developing effective critical infrastructure.

We invite you to read the full "Trends for 2016 - (In)Security Everywhere" report on ESET's education site: www.welivesecurity.com.

THE TECHNOLOGY BEHIND DETECTION

In today's ever changing landscape of computer threats, it is not enough just to use standard malware detection techniques (comparing all files to a known virus signature database), but it is also important to implement heuristic proactive approach to malware detections. Here we explain how one of the techniques ESET uses for detection of malware.

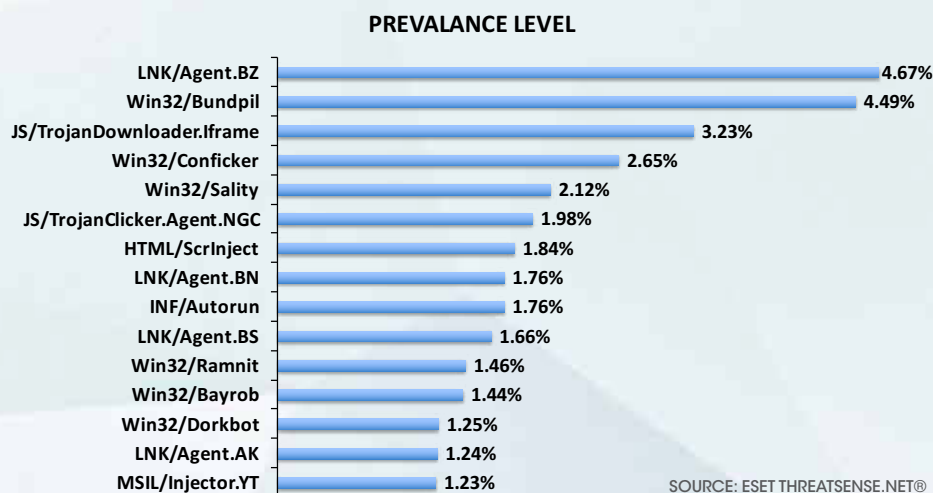
SIGNATURE TYPES

ESET's ThreatSense® scanning engine uses several types of detection signatures for detecting malicious objects (files, processes, URLs, etc.). The signature types range from very specific hashes (useful, for example, in targeting specific malicious binaries, specific versions of malware, statistical purposes, or simply giving a more precise detection name to a malware that we have been detecting generically) to so-called **DNA-based generic signatures**, which are rather complex definitions of malicious behavior and malware characteristics. These generic signatures also rely on heuristics and emulation to evaluate the scanned sample.

In the generic signatures lies the strength of ESET's proactive detection. This means that the detection is effective, as well as efficient – a single well-crafted generic signature can detect thousands of related malware variants and our antivirus software can detect not only malware that we know of, or have seen before, but also new, previously unknown variants.

ESET THREAT RADAR REPORT FOR MALAYSIA

TOP COMPUTER THREATS IN MALAYSIA IN THE PAST MONTH



THREAT IN DETAIL:

LNK/Agent.BZ

Variants: unknown (malware detected on 3rd November 2015)

Aliases: unknown

Category: Trojan

Description: A trojan horse (or simply trojan) is a broad term for malicious software used often for destructive purposes or data theft. The difference between a trojan and a virus or worm, is that it is not able to replicate or infect files on its own. Therefore it must rely on other means to get onto victims' computer systems – for example, Internet drive-by-downloads, by exploiting software vulnerabilities or by social engineering, and so on. Its name, derived from the story of the conquest of Troy by smuggling soldiers into the city inside a massive wooden horse, suggests that it disguises its true function, often employing social engineering to achieve being executed.

WEAK PASSWORDS CONTINUE TO POSE HUGE SECURITY THREAT

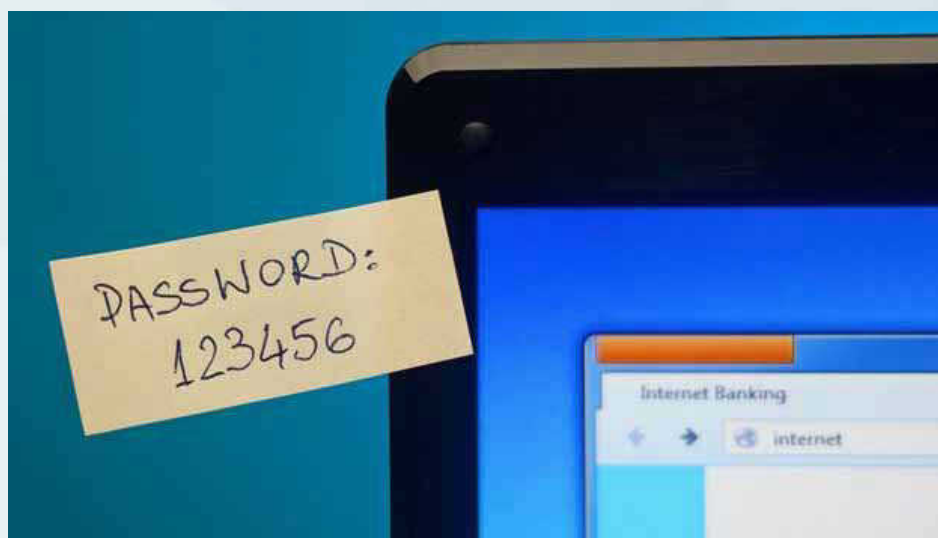
People's choice of passwords continues to pose a huge security risk, according to research. The data comes as part of an annual Worst Passwords List. Compiled by SplashData, it is designed to encourage users to adopt stronger passwords.

It revealed that the two most commonly used are '123456' and 'password', both of which have remained at the top of the list since it first started back in 2011. This highlights the fact that people are still not being vigilant when it comes to online security.

There were signs this year that people are trying to be more creative with their passwords – there were longer alternatives on this year's list, for example. However, unfortunately, these are not as secure as people like to think, as users are simply adding meaningless additions to the end of the original password. For example, instead of '123456', many chose '1234567890'. This is a basic extension, which cybercriminals can take full advantage of.

Morgan Slain, CEO of SplashData, said: "We have seen an effort by many people to be more secure by adding characters to passwords, but if these longer passwords are based on simple patterns they will put you in just as much risk of having your identity stolen by hackers."

Perhaps unsurprisingly, Star Wars themed passwords have cropped up on the list this year, with 'starwars', 'solo' and 'princess' featuring for the very first time.



Despite their more unique nature, these kinds of passwords are found to be just as insecure, SplashData explained.

Sports also continues to be a popular theme with 'baseball' and 'football' both appearing in the Top 10.

Mr. Slain goes on to say that thanks to more publicity about how risky it is to use weak passwords, "more people will take steps to

strengthen their passwords and, most importantly, use different passwords for different websites". They are significantly less secure than other potential targets. Stealing bitcoins, identities or even game levels from another gamer, for example, is far easier than taking money from a bank.

Box of Fitness Tricks


New gadgets from HTC for better health tracking

HTC and Under Armour have unveiled the UA HealthBox, the world's first connected fitness system that measures, monitors, and manages the most important drivers of health and fitness – sleep, fitness, activity and nutrition.

Designed and manufactured by HTC and powered by UA Record, UA HealthBox includes a fitness band, heart rate monitor and a smart scale that all connect seamlessly with UA Record to provide insights that empower individuals to improve their health and fitness. The new UA Record is available for download from the Google Play store and App Store.

The UA Band is designed to be worn all day, every day. It tracks daily activity, workouts and sleep. All day activity capture allows you to set a daily goal and track progress on the band. UA Band utilises a seamless exterior shell with a display that is discreetly hidden under an outer layer allowing the technology to disappear when it is not in use.

UA Heart Rate is a compact heart rate monitor with a micro snap technology designed to make it undetectable during workouts. The chest strap and removable sensor helps individuals monitor intensity and train smarter. The UA Heart Rate was created to provide an accurate calculation of calories burned. Combined with the UA Record app, UA Heart Rate allows you to customise your heart rate zones.

UA Scale is a Wi-Fi enabled scale with a circular design. The scale utilises a sheet of glass with advanced conductive paint technology that enables weight and body fat percentage readings. The hidden LED display behind the glass makes technology invisible when not in use. The scale can support up to eight users and syncs with the UA Record app for individuals to view trends with weight as part of their overall dashboard. UA Scale comes in black with a red textured underside. 




Vivid and Ultra-Thin

Acer introduces ultra-thin monitors

Acer has announced the latest additions to its monitor lineup – the R1 series and H7 series. Featuring IPS panel technology, the Acer displays ensure clear-cut details across 178-degree viewing angles and supreme colour consistency across the entire screen.

The Acer R1 series monitors with ultra-thin enclosures under 7mm are ideal for everyday computing in any space. Combining Acer Flicker-less and Blue Light Filter technologies with 5 to 15 degree adjustable tilt, the R1 series is easy on the eyes, providing a comfortable viewing experience. Its green credentials include EcoDisplay and Energy Star 6.0 certification as well as mercury-free construction.

The Acer H7 series monitors are the world's first to support USB Type-C. They also boast

WQHD (2560x1440) display resolution, superior audio with Acer TrueHarmony and DTS Sound. 



**HAPPY CHINESE
NEW YEAR**



Wholesale Mobile Phones & Tablets



www.directd.com.my



#directd



@directdteam



@directdteam

DirectD Subang Jaya

5 Outlets in SS15
11.00AM-11.30PM

No. 58,62,64,77,85 Jalan SS15/4B,
47500 Subang Jaya, Selangor Darul Ehsan
Hotline : +603-5621 1355

DirectD Gadget Mega Store

"The Largest Mobile Phone Shop in Malaysia"
9.00AM-9.00PM

11, Jln 51A/219, 46100 Petaling Jaya, Selangor
(Federal Highway PJ - same row with AVON)
Hotline : +603-7958 1355



Authorized Distributor
for ChatSim



The Winner of Brand Laureate SMEs
Corporate Branding Award 2014



Intel Platinum Partner
Mobile Specialty Retailer



Asus Golden Premium Partner

Chinese Rival to Gear VR

New Chinese manufacturer claims more compatible smartphones



FiresVR, a Chinese company creating its own VR platform, announced that it has launched a smartphone-based VR headset similar to Samsung's Gear VR. Dev kits will ship in Q1 and retail hardware is expected in Q2.

FiresVR said that the JiDome-1 is the first Chinese company to launch a product similar to the Gear VR. Other VR products available in China are modified versions of Google's Cardboard viewer. FiresVR's JiDome-1 VR headset shares similar traits with Samsung's Gear VR HMD such as buttons to interact with

VR experiences and built-in axis gyroscope and proximity sensors. FiresVR said the JiDome-1 headset also includes active cooling to keep your phone from overheating.

Unlike the Gear VR, which is limited to the four current Samsung phones, FiresVR said the JiDome-1 accepts various Android phones from different manufacturers. FiresVR said that phones require GPUs that support OpenGL ES 3.0 and performance at least as good as Qualcomm's Adreno 310 (found in the Snapdragon 801) to be compatible. [PC](#)



Surround Imaging

Nikon to introduce 360° video camera

Nikon is introducing the KeyMission 360, a wearable action camera capable of recording 360° video in 4K UHD. Creating an experience that is true to life and in all degrees, the camera provides the absolute imaging experience for its users.

With an image sensor and lens combination on two opposite sides of the camera, captured images are combined in-camera to create a single realistic and high definition true 360° image output.

The camera is waterproof to the depths of 30 meters even without a separate housing. Completing the design is an electronic vibration reduction mechanism, which is enabled via applications during playback, for a reduction of the effects of camera shake.

The KeyMission 360, the first of Nikon's action cameras, along with a variety of dedicated accessories, will be released later this year. [PC](#)



Stealth Attack on Gamers

New Ultrabook for gamers from Razer

Razer has announced a new Ultrabook, the Razer Blade Stealth with the latest Intel Core i7 processor and a 4K display. The ultra-thin notebook also gives gamers the option of desktop-level gaming performance with the help of the Razer Core via Thunderbolt 3.

Razer is also planning on disrupting the supply chain with an innovative new direct-to-consumer model that allows the new Razer Blade Stealth to be sold with premium configurations, but at a lower price point relative to the competition.

The Razer Blade Stealth measures 0.52 inches thin and weighs 2.75 pounds.

Its 12.5-inch touch display comes in two resolutions. The Ultra HD variant has 100 percent coverage of the Adobe RGB colour space.

All models will feature 8GB of dual-channel RAM. Additionally, Thunderbolt 3 provides connectivity via the Blade Stealth's compact USB-C port at speeds of up to 40Gbps. **PC**



Confusion Over Security Options

New study finds consumers confused by security options available

Research by Kaspersky Lab and B2B International shows that when it comes to Internet security, consumer concern and awareness are both on the increase. However, despite a growing recognition of the need to protect devices, many consumers are struggling to identify, install and use security software.

The study, which questioned 11,819 people from over 27 countries, assessed cybersecurity trends amongst consumers. It found that consumers are using more connected devices than ever before, with the average household now owning eight connected devices.

The research shows that mobile devices have replaced desktops as the main device for going online and tablets are also losing out to smartphones. In fact, 57% now use a smartphone to mainly access the Internet in 2015, an increase from 45% in 2012.

Whilst a reassuring 93% of those surveyed claim to have installed some kind of security software on their desktop Windows PC, the level of protection

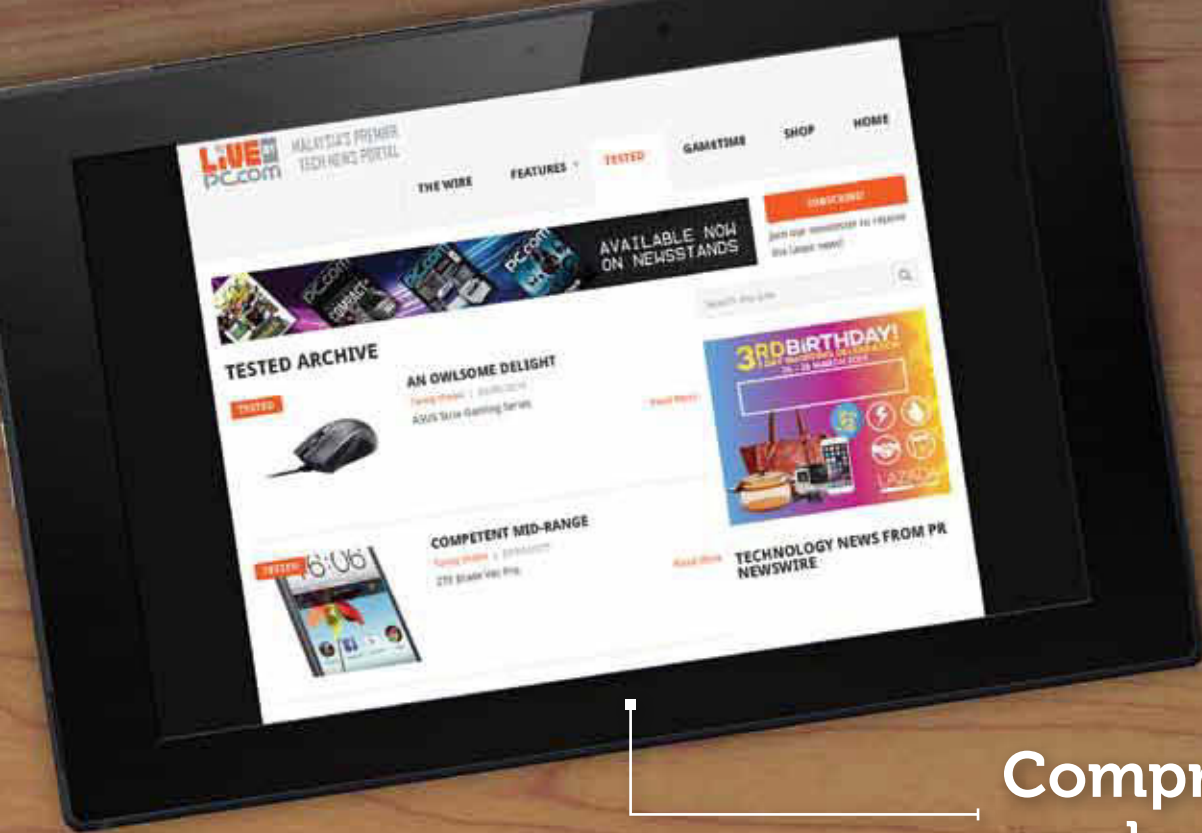
is significantly lower for tablets and smartphones. Only 32% of iPad users have installed security on their device, rising to 65% for Android tablets and 83% for Windows tablets. In addition, only 26% have installed security software on their iPhone, compared to 44% of Windows Phone users and 60% of Android smartphone users.

When asked why they had chosen not to install antivirus or Internet security software, consumers listed reasons that revealed widespread misperceptions and confusion, highlighting a lack of cyber-savviness amongst Internet users. 16% said they didn't protect their connected devices because they assume that Internet security software will slow their computer down too much and 11% felt that software is too expensive.

A concerning 12% admitted they simply don't know what software to install or where to get it from. Overall, only 58% of respondents said they understand how to use Internet security software in 2015, down from 65% in 2013. **PC**



Elena Kharchenko, Head of Consumer Product Management, Kaspersky Lab



Comprehensive
product reviews_



Exclusive insights
into the IT industry_



Social Network Security Issues

Users a bit too frank on social networks

A quiz from Kaspersky Lab has found that almost a third of social network users share their posts, check-ins and other personal info with everybody who is online – not just their friends. This is leaving the door wide open for cybercriminals to attack, as users remain unaware of just how public their private information can be on these channels.

Despite over three quarters of Internet users having a social media account, the quiz showed a distinct lack of awareness amongst social media users. One in ten quiz respondents didn't think people

outside of their friends list could be seeing their pages and posts.

The research found that users are putting themselves in danger when adding friends, with a surprising 12% admitting adding anyone to their list – regardless of whether they know them or not. When it comes to trusting their “friends”, a quarter (26%) of those surveyed would have no hesitation to click on a link sent by a friend without asking what it is, or considering the possibility that the sender's account has been hacked. **PC**



In the Pink of Things

New version of Galaxy Note5 arrives in Malaysia

Samsung Malaysia Electronics has unveiled Pink Gold version of the Galaxy Note5.

“The Galaxy Note5 is by far one of our most successful and popular products in the market. The exceptional innovation and functionality of the Galaxy Note5 aside, we realised that colour too play an important role in the popularity of the phone. From our research on market insights and predictions of current trends in the smartphone industry, we noted that Pink is a unique vibrant colour that resonates with many consumers,” said Mr Lee Jui Siang, Vice President, IT & Mobile Business Unit, Samsung Malaysia Electronics.

According to the company, the introduction of the latest limited edition Pink Gold is the brand's approach to extend the colour options and present a phone that resonates with women of all ages. The new colour is available for purchase with a retail price of RM2,699 (inclusive of GST). **PC**



Compatibility programme for VR

New programme to deliver better VR experiences

Nvidia has unveiled a VR-ready programme to help gamers navigate their way to great virtual reality experiences.

The company has partnered with PC and notebook makers and add-in card providers to deliver systems and graphics cards that deliver an immersive VR gaming experience. The programme minimises confusion regarding which equipment is necessary to play the range of VR games and applications scheduled to come into the market.

Delivering a great VR experience demands seven times the graphics processing power of

traditional 3D games and applications—driving framerates above 90 frames per second for two simultaneous images (one for each eye).

In addition to powering fast framerates, the Nvidia GPUs includes

unique VR features, such as support for Nvidia Multi-Res Shading, which boosts performance by up to 50 percent while maintaining image quality and reducing latency. **PC**

GEFORCE GTX
VRREADY

Shining Among the Watches

New Huawei smartwatches target female buyers

Huawei has unveiled Jewel and Elegant versions of its 2015 premium smartwatch. In collaboration with Swarovski's Gemstone Business, the Huawei Watch Jewel and Elegant mark a new female focus for the company.

Joining the Classic, Active and Elite smartwatches released last year, the new Jewel and Elegant editions offer two stylish options aimed at women. Featuring 68 Swarovski Zirconia dotted around the rose gold-plated case, each measuring 1.5mm in size, the Jewel glistens and shines.

A more understated option, the Elegant edition has a knurled pattern effect around its rose gold-plated case. There are also two genuine Italian leather watch straps available in pearl white and sapphire blue. The Jewel and Elegant comes pre-loaded with over 40 watch faces as on the original model, including 10 exclusive feminine designs.

Powered by Android Wear, the Huawei Watch displays alerts for calls, texts, instant messages and emails. The Watch also features Bluetooth connectivity for wireless headphone usage, meaning you can listen to offline music downloads while you work out. **PC**




Glimpse of the Stars

Real-time special effects during video calls



automatic noise-cancelling, dual-array mic.

Powered by the Intel RealSense SR300 camera, the Stargazer has a dynamic background removal capability that eliminates the need for full-scale green screen setups traditionally used by streamers. The webcam's Intel RealSense Technology enables the camera to intelligently sense depth to separate foreground from background. This feature works with popular broadcasting software like OBS, XSplit and Razer Cortex: Gamecaster.

Backgrounds can also be removed during Skype calls. FaceRig, QQ Video and ooVoo are also supported by the camera. 

Razer is releasing the Stargazer desktop webcam. According to the company, it delivers the best video capture quality in a webcam available today and simplifies

traditional streaming setups.

It captures video at 60 frames per second at 720p and it can provide high-definition 1080p video at 30 frames per second. The Razer Stargazer also includes an

More Joy for Gamers


Asus gaming motherboard with Intel's latest Xeon chipset

Asus has announced the immediate availability of E3 Pro Gaming V5 in Malaysia. The ATX motherboard based on the latest Intel C232 Express chipset and packed with game-enhancing exclusive features including gaming-grade SupremeFX and Sonic Radar II audio, gaming-grade Intel Gigabit Ethernet with Asus LANGuard and GameFirst technologies for fast, safe and lag-free online play.

The E3 Pro Gaming V5 offers desktop gamers the opportunity to use the latest server-grade Xeon E3-1200 v5 processors based on Intel's high-efficiency 14nm 'Skylake' architecture. It also supports the newest high-speed DDR4 memory modules.

It is also equipped with a dedicated water-pump header, plus intuitive Fan Xpert 3 controls. The motherboard also

offers the very latest connectivity, with USB 3.1 Gen 2 Type-A, reversible USB 3.1 Gen 2 Type-C and NVMe Express (NVMe) M.2 built in.

E3 Pro Gaming V5 also includes an exclusive RAMCache technology to accelerate game loads, and has durable Gamer's Guardian components to ensure longevity. 



Polaris Shines for AMD

New GPU promises more than double the performance

AMD recently provided customers with a glimpse of its upcoming 2016 Polaris GPU architecture at CES 2016, highlighting a wide range of significant architectural improvements including HDR monitor support and industry-leading performance-per-watt. AMD expects shipments of the new Polaris architecture-based GPUs to begin in mid-2016.

AMD's Polaris architecture is based on a 14nm FinFET manufacturing process. The Polaris-based GPUs are designed for fluid frame rates in graphics, gaming, VR and multimedia applications running

on compelling small form-factor thin and light computer designs.

The Polaris architecture features AMD's 4th generation Graphics Core Next (GCN)

architecture, a next-generation display engine with support for HDMI 2.0a and DisplayPort 1.3, and next-generation multimedia features including 4K h.265 encoding and decoding. **PC**



IoT Focus for Samsung

Greater connectivity focus for new consumer devices



Samsung unveiled its vision for 2016 during its press conference at CES 2016. The company underlined its focus on the Internet of Things (IoT) as an open platform, with SmartThings technology.

Samsung also revealed the new bezel-less curved SUHD TVs with Quantum dot displays, the connected Family Hub refrigerator, its newest smartwatch - the Gear S2 Premium, and a large screen Windows tablet, the Galaxy TabPro S.

Samsung delivered the press conference from a stage enhanced by its own display technology, using a large 18.3m x 4.8m curved screen, which the company designed and

built using its own LED signage.

According to Samsung, the SUHD TVs feature the world's only cadmium-free, 10-bit Quantum dot display. The future of display technology, Quantum dot display converts light into nearly any colour in the visible

spectrum without distortion or compromising the brightness level.

All of the Samsung SUHD TVs this year will feature the ability to provide a premium high dynamic range (HDR) experience, for a higher level of contrast between light and dark images. New Ultra Black technology also significantly reduces light reflection, further enhancing picture quality with minimal glare.

Built on the Tizen operating system, Samsung's 2016 Smart TVs eliminate the need to juggle multiple remote controls. The Samsung Smart TV will automatically recognise the type of set-top box, game console, OTT box or home theater system

that is connected to the TV. This allows users to control all of the external devices with the Smart Control remote — with no setup required.

All 2016 SUHD TVs will also feature IoT hub technology, developed by Samsung with SmartThings. The SUHD TV can connect with and control over 200 SmartThings compatible devices — whether it's to see who is ringing the doorbell, lock the doors or turn off the lights — all from the TV.

The company also revealed the first Ultra HD Blu-ray Player, the HDR-compatible UBD-K8500, which offers four times the resolution and 64 times higher colour expression than conventional players.

Samsung also introduced the Gear S2 classic with two new unique colour variants - Rose Gold and Platinum. The Gear S2 will offer a secure mobile payments feature with Samsung Pay and is expanding its compatibility to devices running on iOS to extend accessibility to a wider range of mobile users.

The company also unveiled a brand new mobile product category with the announcement of its Galaxy TabPro S, a Windows 10-powered tablet. It includes a full size keyboard. **PC**

New Yoga Gets OLED Display


Lenovo unveils ThinkPad Yoga X1 with OLED Display

The ThinkPad Yoga has been around for some time, as a business focused version of the Yoga family. The new Yoga X1 is the first convertible device being launched with an OLED (Organic Light Emitting Diode) display.

Lenovo is using a Samsung OLED as the optional panel, and it's a 14-inch 2560x1440 version. The base device comes with a 1920x1080 IPS LCD, and there is also an optional 2560x1440 IPS LCD too, but the OLED should give a large gamut and of course the deep blacks that OLED is known for, along with greater contrast.

The X1 Yoga also features an active stylus, which docks into the keyboard base. When docked, the pen charges, so

keeping the stylus charged and available should be easy. The laptop is powered by Skylake-U series processors, up to a Core i7 with vPro. You can also get up to

16GB of memory, and a 1 TB PCIe NVMe SSD as well. The convertible weighs in at 1.27kg / 2.8 lbs and is 16.7 mm / 0.66-inches thick. 




New Chip to Support 4K Blu-Ray

The world's first integrated SoC for 4K Blu-Ray players

MediaTek has announced the MediaTek MT8581 for Ultra High Definition (4K) Blu-ray players. The MT8581 will power the industry's first Blu-ray players to use both Ultra-HD (UHD) and high dynamic range imaging (HDR), dramatically improving display clarity and contrast beyond what is currently on the market.

The MT8581 powers a viewing experience that gives consumers four times the pixel density of today's Blu-ray players. This provides a display quality so clear that it has been compared to looking through a window instead of watching a television.

HDR is another standard recognised in the industry as boosting display quality. It reproduces a greater dynamic range of light and dark visuals than is possible with standard digital imaging or photographic techniques, improving the appearance of on-screen contrast.

The MediaTek MT8581 can support Blu-ray, DVD and CD playback, including the latest BD-ROM format, such as BD-Live and BonusView. 



Notebooks Get Better Sense

Intel RealSense technology integrated into Acer laptops

Acer recently introduced the latest Intel RealSense short range camera to its top-of-the-line "Black Edition" Aspire V Nitro notebooks. The world's first to feature the new and improved camera, the Aspire V Nitro Black Edition offers gamers improved experiences with its enhanced 2D and 3D image quality allowing gamers to broadcast their gaming experiences and video chat with background removal.

Soon, gamers will also be able to customise their game experience by scanning their face and putting it on their favourite game's character and scanning objects to place in their own game modifications.

Available on both the 15-inch and 17-inch Aspire V Nitro Black Edition

notebooks, the new Intel RealSense Camera offers an improved sensing range of up to 1.5 meters from the device and more precise gesture tracking, control and object recognition. The

camera also enables Microsoft's new biometric authentication system for logging into Windows 10. While using it as a regular 2D camera, it can operate at HD resolution at 60 fps. **PC**



Aid for the Needy

New partnership to help the disabled

Digi Telecommunications announced Dialogue in the Dark (DiD), a social enterprise in partnership with Genashtim (technology solution provider) as the winner of the sixth edition of its Digi Challenge for Change (DigiCFC) programme. The two other finalists in the running were Protect and Save The Children.

DiD received a grant of RM250,000 and the opportunity to be guided and mentored by the programme partners. Their winning social business idea was to train, equip and empower persons with disabilities and visually impaired persons with language and digital literacy skills to operate a virtual call centre. It will be equipped with a solution that is based on an innovative screen reader technology.

Among the panel of judges for the finale were Eddie Razak, Executive Vice President of Social Innovation of

Agensi Inovasi Malaysia, Wan Dazriq, Programme Manager for Ventures, Social Entrepreneurship of Malaysian

Global Innovation & Creativity Centre, and Quah Yean Nie, Digi's Head of Communication & Sustainability. **PC**



Vive Gets an Update

Improved HTC Vive set to launch in April

HTC has announced the Vive Pre, an updated version of its VR system. According to the company, the refreshed design of the Vive headset has been refined to offer greater comfort to the wearer, increasing the sense of immersion in the virtual worlds it creates.

A newly developed front facing camera allows you to do more both inside and outside your virtual world by blending physical elements into the virtual space. Being able to take a seat, find your drink, and carry on conversations without removing your headset is only the beginning of what's possible.

Completing the VR experience, the Vive's controllers have been overhauled and enhanced with updated ergonomics and softer edges, greater balance, new textured buttons

and grip pads for a more comfortable feel in the hand. The new dual stage trigger makes interaction with objects

smoother, and haptic feedback delivers vital feedback about your interactions with the virtual world. **PC**



AI Boost for Autonomous Cars

New tech from Nvidia to boost AI for self-driving cars

Nvidia has launched the Nvidia Drive PX 2, which the company claims is the world's most powerful engine for in-vehicle artificial intelligence.

The Nvidia Drive PX 2 allows the automotive industry to use artificial intelligence to tackle the complexities inherent in autonomous driving. It utilises deep learning on GPUs for 360-degree situational awareness around the car, to determine precisely where the car is and to compute a safe, comfortable trajectory.

"Drivers deal with an infinitely complex world," said Jen-Hsun Huang, co-founder and CEO, Nvidia. "Modern artificial intelligence and GPU breakthroughs enable us to finally tackle the daunting challenges of self-driving cars. Autonomous cars will bring increased safety, new convenient mobility services and even beautiful urban designs."

The Drive PX 2 provides processing power for deep learning, equivalent to that of 100 MacBook Pros. Its two Tegra

processors plus two discrete GPUs, based on the Pascal architecture, deliver up to 24 trillion operations per second. **PC**



Crowding Together

Another equity crowd funding platform arrives in Malaysia

Crowdo, one of the largest crowdfunding platforms in Southeast Asia, has launched its equity crowdfunding platform in Malaysia. This follows Crowdo being approved as a Recognised Market Operator (Equity Crowdfunding Platform) by Securities Commission Malaysia (SC) in June 2015.

"This launch is indeed timely in a Malaysian context, as we believe that the Malaysian startup scene is at the beginning of a dynamic and exciting growth phase. Equity crowdfunding is widely seen as a powerful enabler that will help startups grow and further develop their innovation," said Leo Shimada, Co-Founder and Chief Executive Officer of Crowdo.

Crowdo's launch featured a panel discussion on equity crowdfunding's

role and impact on Malaysia's growing entrepreneurial ecosystem. Shimada joined notable executives from Securities Commission Malaysia and the Multimedia Development Corporation (MDeC), and a

renowned local Malaysia entrepreneur to discuss how equity crowdfunding presents a powerful and unique opportunity in addressing financing challenges to help businesses achieve their full potential. **PC**



Employer Review

Employers under the microscope

JobStreet.com launched its newest product, 'Company Reviews', at the 18th JobStreet.com Malaysia Career and Training Fair 2016 (MCTF'16). The career fair is jointly organised with long-standing partner, AIC Exhibitions and includes over 120 of Malaysia's top employers.

Company Reviews is a new and easy-to-use feature for employees to comment on their workplace. This gives a view inside a company, helping candidates get real insights into the workplace reality of companies in Malaysia and make informed career choices.

Candidates receive valuable workplace insights from reviews of current and former employees. This helps them make better choices in selecting a workplace that is a good fit for them.

Employers also receive applications from more engaged candidates, and

focus interviews on employees who are a better cultural fit. They can also respond to candidates' reviews,

communicate their employer value proposition (EVP) and provide an updated view of their workplace. **PC**



Fujitsu to Split Up

Fujitsu set to spin off its PC and smartphone divisions



Fujitsu announced that it would spin off its personal computer and smartphone operations into separate wholly-owned subsidiaries. Fujitsu will continue to own the aforementioned business entities, but wants management of the new companies to be fully responsible for their business results. While the move may make sense from financial point of view, it has the potential to be difficult for each business unit to build a unified brand once they are separated.

Throughout Fujitsu's 80-year history, the firm (like many others) has invested tens of billions in research and development of new technologies and continues to be a major R&D powerhouse. Fujitsu produced Japan's first mainframe computer in 1954 and subsequently became one of the largest makers of personal computers, together with Siemens.


The company remains one of the globe's biggest IT companies by revenue, but as the IT business changes, Fujitsu is transforming like many others. Today, the most important parts of the company's business are IT services, technology solutions, IT consulting and telecommunications.

Personal devices, such as smartphones, PCs and others, remain an important part of Fujitsu's operations, but at this point in time the company believes that it makes sense to spin them off.

Starting from February 1st, Fujitsu's PC business will be officially called Fujitsu Client Computing Limited, whereas the smartphone subsidiary will be called Fujitsu Connected Technologies Limited. Both subsidiaries will receive the assets, liabilities, contractual status, and other rights and obligations concerned with their businesses. Fujitsu will formally invest ¥400 million (\$33.206 million) into each of the newly established units.

Fujitsu has said that desktop and notebook PCs, as well as smartphone products, are facing ongoing commoditisation,

which makes it increasingly hard to differentiate own brand products and compete against global manufacturers. The company indicated that splitting PC and smartphone units from the parent would create two integrated systems covering all aspects of research, development, design, manufacturing, sales, planning, and after-sales services.

It is also clear that Fujitsu Client Computing and Fujitsu Connected Technologies will be considerably smaller than their key rivals on the PC and smartphone markets (e.g., Apple, Dell, HP, Samsung, etc.). Also, once Fujitsu's PC and mobile subsidiaries are independent, it will be easier for the parent company to find new partners, establish joint ventures or simply sell the subsidiaries should the need arise. 



CATCH THESE BLOCKBUSTER MOVIES IN DIGITAL NOW AT CATHAY CINEPLEXES



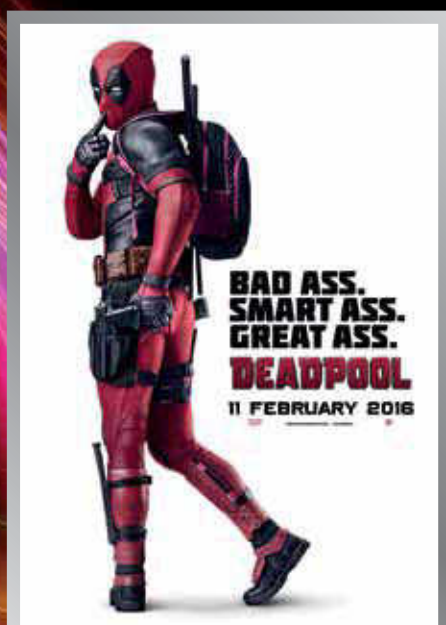
OPENS 4 FEBRUARY 2016



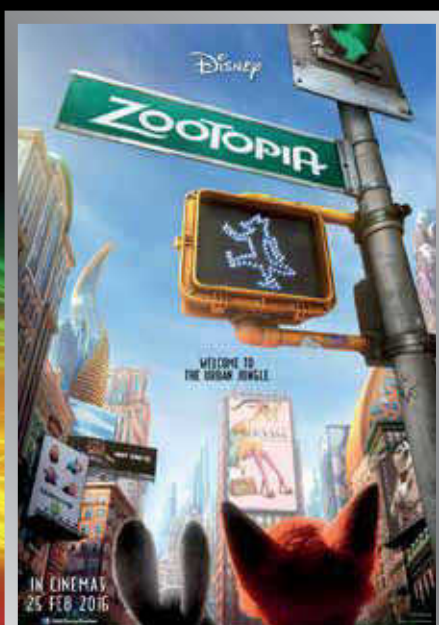
OPENS 4 FEBRUARY 2016



OPENS 4 FEBRUARY 2016



OPENS 11 FEBRUARY 2016



OPENS 25 FEBRUARY 2016

Purchase your movie tickets @ cathaycineplexes.com.my



Rise of Smart Connectivity Predicted

Lenovo predicts the rise of smart connectivity and hyperconvergence

Lenovo announced their outlook and exciting trends for 2016. According to the company, the digital world is expected to see the rise of smart connectivity, a hyperconverged market and a sustained push in the area of content.

In the coming year, Lenovo foresees that technology will no longer operate in silos – the Internet of Things (IoT) trend has been around for quite some time now, but in 2016, Lenovo believes that connectivity itself will not be enough; it will have to be smart connectivity.

That is the direction the industry should be taking in product innovation. Natural language interfaces, for example, enables better connectivity between devices and people by allowing you to literally talk to your devices.


In fact, Gartner postulates that one of the hottest trends in 2016 will be the device mesh – it is the web of tech surrounding mobile users that goes beyond traditional mobile devices. As people become more attached to their devices, we have to find new, richer ways of helping them get connected – both to the web and to each other.

According to IDC, the hyperconverged market will be USD\$800 million in 2015 and grow rapidly to nearly USD\$4 billion in 2019. Lenovo's strategy is to become the market leader in x86 servers – by investing in the development and delivery of IT solutions shaping the next generation datacenters.

2016 should be an exciting year for consumers, as more content-based strategies, alliances and partnerships will take place. Content has been king for a

long time, and will offer more value for consumers everywhere as technologies continue to be more commoditised.

One of the hottest content commodities, gaming, is just one area where Lenovo is focusing its earnest efforts in. According to Jon Peddie's PC Gaming Hardware Market Research, the PC gaming market produced \$21.5 billion in hardware sales last year.

Lenovo believes that the recent resurgence of PC gaming, contributed by superior graphics and processing, as well as the meteoric rise of the eSports scene and free-to-play games will see exciting times for the gaming hardware sector. 



Intel Makes Big Acquisition


Intel buys Altera for US \$16.7 billion

Marking the end of 2015, Intel bought out Altera in an all-cash purchase of approximately \$16.7 billion. Altera will no longer keep its original name. Instead, it will be part of Intel's business group under the new brand called the Programmable Solutions Group (PSG), with Dan McNamara, Altera's former vice president and general manager for its embedded and systems division, at the helm.

Altera's main focus of production was field-programmable gate arrays (FPGA), and Intel wants the PSG to continue working in that field. However, it will also collaborate with Intel's Data Center and Internet of Things groups to create new products. As for those

who still utilise Altera's products, Intel assured customers that it will support current and future devices created by the PSG, such as its lineup of FPGAs and ARM-based SoCs.

Prior to the purchase of Altera, the two companies had collaborated

in the past. In 2013, Intel had announced that its 14nm tri-gate transistor technology would include Altera's FPGAs. Later that same year, Altera's Stratix 10 SoC devices would incorporate a quad-core, 64-bit ARM Cortex A53 processor. 



now part of Intel

I GOT IT HERE

HAPPY CHINESE NEW YEAR



" We are professional retail operation for the ICT industry. Our ICT Centre is a 20,000 square foot premise at 1st Avenue, Penang and includes popular IT and Telecommunication products. Visit an iconic IT shopping experience that caters to your lifestyle needs. "

ICT Shops Available At 2ND Floor 1ST AVENUE
RETAIL OUTLET ENQUIRY +603 2727 2727

The Management Initiative Sdn. Bhd. (1025869-U)
A-5-1, Level 7, Block A, Menara Uncang Emas,
No. 85, Jalan Loke Yew, 55200 Kuala Lumpur

Managed by:



Official Media Partner:



Security Tips for New Cloud Users

Five new must-dos for new cloud users in Malaysia

Many organisations are moving to virtualised and cloud-based infrastructure. Businesses are virtualising servers, desktops, network functions and more, while the cloud (whether public, private, or hybrid) is quickly becoming the dominant platform for enterprises both big and small.

"The potential benefits are well-proven, but security is just as important as in physical and on-premises environments," said Michelle Ong, Fortinet's Country Manager for Malaysia.

All three technology giants – Apple, Amazon and Microsoft – considered the gold standard among cloud computing providers, have suffered the ignominy of being breached by hackers.

Cloud security risks are rising, with attacks growing at 45% year-on-year globally, according to cloud security firm Alert Logic. In the next five years, US\$2 billion will be spent by enterprises to shore up their cloud defences, according to Forrester Research.

"First time cloud users can be most at risk, simply because of unfamiliarity with the new environment and the added burden of having to grapple with a new way of managing users, data and security," added Ong. Fortinet advises the first time cloud users to adhere to the five security must-do's before taking the plunge:

1. KNOW THE CLOUDY AREAS

There are three main segments in any cloud deployment – the cloud vendor, network service provider and enterprise.

During vendor selection, ask the cloud vendor what security services it provides and which security vendors it works with. The cloud is a dynamic environment and requires regular updates to the security architecture to stay up with the latest threats. How does the cloud vendor guard against new security exploits and zero-day vulnerabilities?

Also find out where the boundaries are in the shared security models that come with the cloud service. Understand the extent of your cloud provider's responsibilities – and your own. In some cloud services, such as IaaS, it is the responsibility of the enterprise to secure its applications and data in the cloud. It is therefore important to know what security

appliances and vendors the cloud provider offers/allows the enterprise to deploy in the cloud to do just that.

2. NEW APPS, NEW FORTIFICATIONS

Before you move an application into the cloud, consider adding new fortifications to the existing security measures you have built around your application's authentication and log-in processes.

To fortify the access to your cloud application, you should have a granular data access scheme. You can do so by tying access privileges to roles, company positions and projects. This will add an additional layer of protection when attackers steal your staff's login credentials.

Account hijacking may sound basic, but this age old breach has been flagged by Cloud Security Alliance as a continuing top threat for cloud users. To fortify your login process, consider implementing two-factor authentication, posture checking and the use of one-time passwords. A good tip is requiring user IDs to be changed at initial logins.

3. EMBRACE ENCRYPTION

Data encryption is one of your biggest security ally in the cloud, and it should be non-negotiable when it comes to file transfers and emails. While it may not prevent hacking attempts or data theft, it can protect your business and save an organization from incurring hefty regulatory fines when the dreaded event happens.

Ask your cloud vendor about their data encryption schemes. Find out how it encrypts data that is at rest, in use, and on the move. To understand what data should be encrypted, it helps to get a handle of where they reside – whether in your cloud vendor's servers, the servers of third-party companies, employee laptops, office PCs or USB drives.

4. WRESTLING WITH THE VIRTUAL

Physical security appliances are typically not designed to handle the data that is in the cloud. This is where virtual security appliances come in – to secure traffic as it flows from virtual machine to virtual machine.


Such appliances are built to handle the complexities of running multiple instances of applications, or multi-tenancy.

They therefore let businesses exert fine security control over their data in the cloud. Ask your cloud provider how it safeguards its virtual environment and find out what virtual security appliances it is using. If you are building your own private or hybrid cloud, consider getting virtual security products that focus on granular control.

5. DON'T BE IN THE DARK ABOUT SHADOW IT

There is no shortage of anecdotes and reports out there that point to how the unauthorised use of applications and cloud services, or shadow IT, is on the rise among businesses. The uncontrolled nature of this poses a security threat and governance challenge.

Your new cloud application will be at risk because of this. Consider the simple scenario in which your employees use their smartphones to open a file on their device. It is likely that the phone will make a copy of the file, which could then be sent to an unapproved online storage destination when the phone does its routine automatic backup. Your secure corporate data has just been moved to an insecure location.

Preventing access to shadow IT is unlikely to stop its growth in any given organization. It is more effective to educate your users and use technology to manage the issue. Encryption, network monitoring and security management tools can help defend your first cloud app against the risks of the shadow IT. 



Michelle Ong, Fortinet's
Country Manager for Malaysia



Available at all major bookstore. Download edition on app store and google marketplace

BUSINESS TODAY

Covers critical economic, financial and business developments that impact Malaysian and multinational enterprises, and marries it to a lifestyle focus that's second-to-none.

PC.COM

The country's leading local ICT magazine, and continues to be every newbie and veteran user's ultimate guide to the computing age.

TRAVEL & DINING

The latest luxury themed magazine that centres around what everyone likes most - travel and food - and we brings you the best kept secrets of chefs, dieticians, and wonder-struck travelers, who love nothing more than to share with you their pearls of wisdom.

REACH PUBLISHING SDN BHD
NO 15-3, BLOCK F1, JALAN PJU 1/42, DATARAN PRIMA,
47301 PETALING JAYA, SELANGOR DARUL EHSAN
O: 03-7880 2611 | F: 03-7880 1971

CORPORATE: WWW.REACH.COM.MY
PC.COM: WWW.LIVEATPC.COM | WWW.FACEBOOK.COM/PCDOTCOM
WWW.TWITTER.COM/PCDOTCOM | WWW.YOUTUBE.COM/USER/PCDOTCOMMY

BUSINESS TODAY: WWW.BUSINESSTODAY.NET.MY

Focus On Digitisation

Cisco emphasises the need for improved digitisation in Malaysian companies

The Malaysian ICT industry has seen some noticeable developments in the last 12 months, attributed to the increasing cloud adoption, advance big data application, mobility optimisation, and the growing emphasis on facilitating the Internet of Things (IoT).

The convergence of these technology transitions is bringing an immense focus on how technology and connectivity can further improve productivity and change people's lives. As it is, new business models like those from ride-sharing and banking apps are changing the competitive landscape – and we can expect similar disruptions in the year ahead as we enter a time for Malaysia to brace for digitisation.

Digital disruption not only impacts key economic sectors and many facets of our lives, but also creates challenges for established business models. It is no longer the question of what drives digitisation, but rather how Malaysia should embrace digitisation and prepare towards 2016.

DIGITISATION IS NO LUXURY

Malaysians today are more connected, mobile and tech-savvy. They increasingly demand services and capabilities that only digitally transformed nations and organisations can offer. For instance, transportation and courier services thrive on connections, feeding valuable information to drivers delivering packages or passengers waiting for the bus.

A little less technology involved would render these services sub-optimum. In short, digitisation – or bringing the connection of people and business with things – is not a luxury anymore. It is a necessity to survive and thrive in an environment where the internet changes everything, while opening up abundant opportunities for fast movers.

This is especially important considering conservative speculation of the 2016 economy that is set to slow to 4.5 percent. On the other hand, the ICT industry is being cautiously optimistic with a 12-14 percent growth forecast.

In such an uncertain yet competitive landscape, we need be strategic with ICT investment, focusing on transforming businesses into a hyper-aware, predictive, and

agile organisation. Business processes will become intelligent systems that respond to any situation, connecting both machines and people to enable critical, real-time responses and insight-driven decision-making.

TRANSFORMING LEADERSHIP

Gartner estimates that 75 percent of businesses will become digital by 2020, but only 30 percent of digitisation efforts will be successful, owing to lack of specialised talent and technical expertise. Cisco's Digital Vortex discovered that only 1 in 4 leaders say they are being sufficiently proactive about digitisation, while almost half of the leaders surveyed (45 percent) say digital disruption is not a board-level concern.

This defining moment of the internet will bring many opportunities to revolutionise the world, but only as long as leaders are ready to embrace it. Organisational changes must be driven by the executive leadership team and board of directors.

Given the magnitude of digital transformation, only top-down leadership will ensure that new strategic directions are cultivated and supported. In addition, leaders must drive the creation of the 'workforce of the future', one that is digitally savvy, creative and accustomed to constant change.

SECURITY CONCERNS

Connected experiences fuelled by digitisation means new entry points for hackers. With the average cost of a breach now reaching US \$5.9 (RM25.3) million, security has become a major concern to an organisation's bottom line.

Seizing the digital opportunity, organisations need to make security a core competency, while protecting assets across the attack continuum – from the network to the endpoint and from the cloud to every corner of operations.

In the coming year, businesses need to deploy an integrated approach that minimises security risks and exposure versus point solutions that can leave vulnerable gaps. In addition, organisations should work with trustworthy vendors and enlist security service providers for guidance and assessment. This in turn would allow them to focus on managing the transformation and growing their business.

PARTNERSHIPS ARE CRUCIAL

Digitisation is much more than just embracing technology to do business at a lower cost, and certainly not just about gathering heaps of data for decision making purposes. It means re-inventing how you run your organisation, while addressing culture, talent, technology and beyond.

ABOUT ALBERT CHAI

Albert Chai is currently the Managing Director for Cisco in Malaysia and is responsible for all of Cisco's sales and marketing activities in the country.

Albert joined Cisco in July 2009, as the Regional Manager for Service Provider, managing the sales and business development for Service Provider customers in Malaysia. Since then, he has worked with numerous divisions in the Cisco office in Malaysia and the region. He led Cisco's regional business with Axiata Group in September 2010, before returning to the Malaysia office in April 2013.

Prior to joining Cisco, Albert was the Vice President of Sales responsible for the South East Asia region at Acision, a global leader in messaging and mobile internet solutions and the Country Director of Logica, Indonesia where he was instrumental in transforming Logica's consulting, outsourcing, system integration and products business by growing their annual revenue multiple fold during his tenure. 



Changing Partners


Qualcomm switches to Samsung for future production

Samsung Electronics seems to have grabbed all of Qualcomm's business with a second-generation version of its 14nm FinFET process. This is a major blow to Qualcomm's previous partner, TSMC.

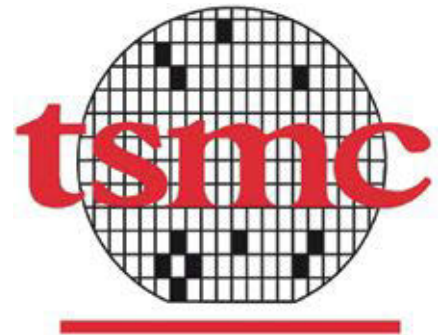
Samsung has launched commercial production of advanced logic using its 14nm Low-Power Plus (LPP) process, the latest generation of the 14nm process technology, the company said in a press statement.

Samsung said Qualcomm is making its Snapdragon 820 processor on

Samsung's new 14nm LPP process, and the first products will be in mobile devices in the first half of this year.

The Samsung announcement coincides with a prediction from TSMC that TSMC's share of the 16nm/14nm market will increase to 70 percent in 2016 from 50 percent in 2015. TSMC forecast demand for its 16nm products to increase, accounting for about 20 percent of the company's revenue in 2016, according to company Co-CEO, C.C. Wei. 

SAMSUNG




Glory Days are Over

Gross margin dips for Intel

Intel's fourth-quarter 2015 financial results have been released. The company reported revenue of US \$14.9 billion for the quarter, up 1% compared to Q4 2014 and operating income of \$4.3 billion, down 3% from the same time last year. Gross margin shrank 1.1% to 64.3%.

The company's Client Computing Group took in \$8.8 billion, a 1% decline compared to this time last year. According to the company's CFO commentary, desktop platform volumes (which account for both processors and chipsets) fell 9% year-on-year, but desktop average selling prices rose 9%.

Notebook platform volumes experienced a 10% year-on-year decline, but average selling prices increased 6% on that basis. The

company says its tablet volumes fell a precipitous 33% compared to a year ago, but average selling prices were up "significantly." 



PC Market Down

Downward trend in PC shipments continues


Worldwide PC shipments totalled 71.9 million units in the fourth quarter of 2015, a year-on-year decline of -10.6%, according to the International Data Corporation (IDC). The news ended 2015 as the first year below 300 million units since 2008.

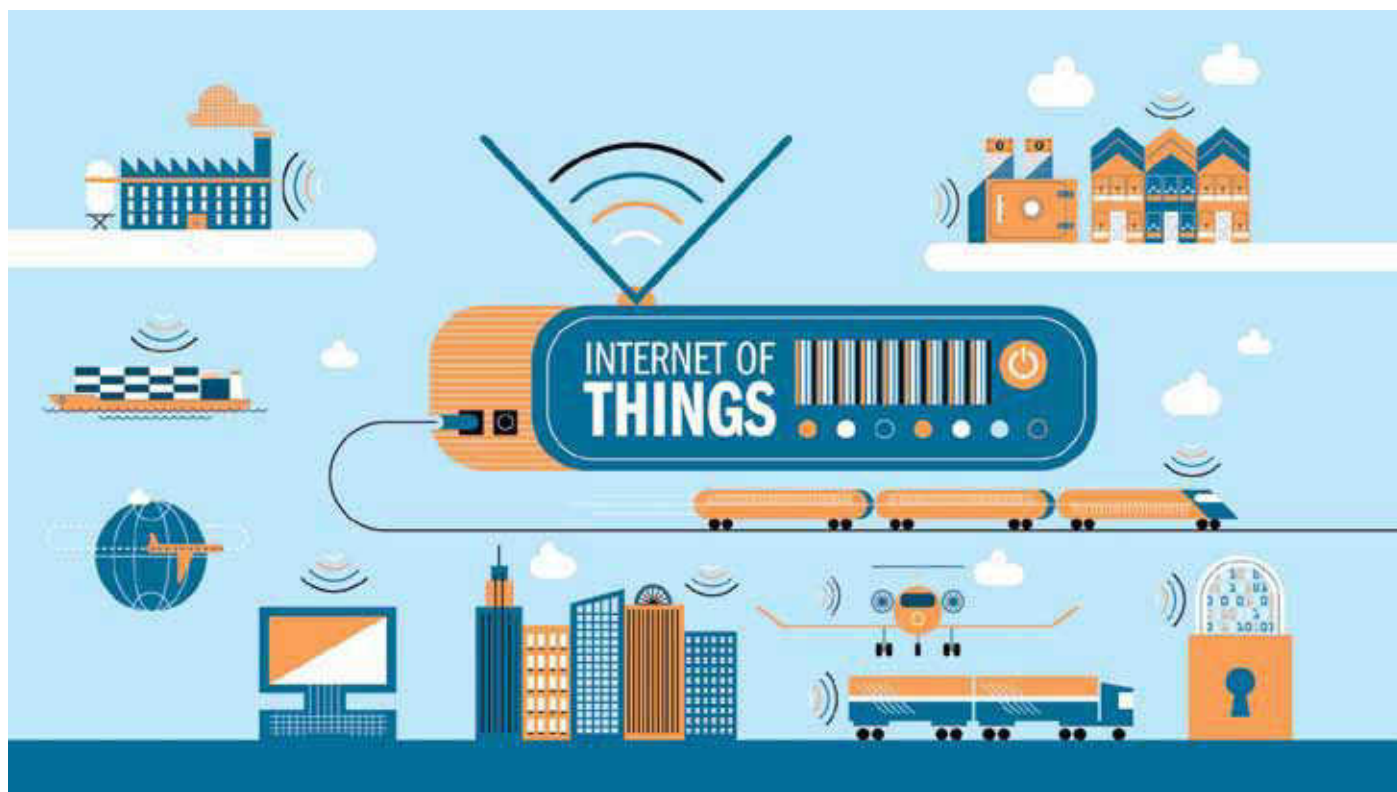
The holiday quarter achieved a modest uptick compared to the third quarter,

but the year-on-year decline in 2015 shipments was nevertheless the largest in history, surpassing the decline of -9.8% in 2013.

According to the report, the PC market continued to face persistent challenges from longer-PC lifecycles and competition from mobile phones and tablets, despite the slowing growth in those markets.

However, economic issues like falling commodity prices and weak international currencies were a larger factor for 2015.

Detachable tablets, which are counted separately from PCs, are growing quickly but from a small base. Lenovo maintained its top rank for the quarter and all of 2015, exceeding 20% market share for the year. HP was the number 2 vendor. 



NetApp Predicts Data Revolution

The IT industry is undergoing a significant shift towards a digital transformation.

by Heoh Chin Fah, Country Manager, NetApp

2 015 saw exciting conversations revolving around the Internet of Things, cyber security and Big Data analytics. As the amount and complexity of data that is available at our fingertips grows, it becomes important to find a better way to store, manage and retrieve data

The IT industry is undergoing a significant shift towards digital transformation. Businesses are evolving their IT strategies to take advantage of cloud and data mobility. There have also been exciting conversations revolving around how the Internet of Things, cyber security and Big Data analytics are setting the agenda for the digital transformation of businesses and cities.

There is no doubt that the hybrid cloud is taking off. Therefore, IT organisations must learn to support a

modern constituency of end users who are eager to create new, flexible, and responsive IT environments and see the public cloud as a solution.

At the same time, they are scrutinising the return value from past

IT investments, reducing budgets and rethinking how they consume and use data. This evaluation is creating caution around transactional spending for traditional storage systems, and is diverting their budget





Not the Right Melody

Music industry revenue set to fall this year



spending on recorded music in 2016. According to Ovum's latest forecasts, global retail sales of recorded music will edge down 0.5% in 2015 and will fall a further 0.2% in 2016. In 2015, subscriptions alone will account for 28% of digital spending and 15% of the combined digital and physical spending total. Five years ago, barely 3% of retail spending on recorded music came from subscriptions.

One thing to note when looking at the music industry future is how big an impact streaming will make in markets that until now have contributed next to nothing to the recorded music industry pot.

Countries such as China and India that have long been dominated by music piracy, but are so often thought of as "emerging markets" will start to live up to that tag. Streaming services in India are already reporting high user metrics and the early results elsewhere suggest streaming is not only guiding the recorded music industry's future in Western countries, but is also opening doors to the less developed markets.

As well as growth in streaming revenue, Ovum is expecting the sector to consolidate. Casualties in the race to become the music streaming service of choice are unavoidable. Given the amount of services offering what is essentially the same product to a limited number of customers, company closures and acquisitions are inevitable.

"The shift from music ownership to access is not an overnight proposition and consumers will take their time to change the habits of generations. But it remains the recorded music industry's best bet for returning consumer spending to levels not seen for more than 15 years," concludes Dyson. 

The shift in consumer spending towards accessing music rather than owning it is an unstoppable trend that has resulted in the one of the biggest shake-ups in recorded music distribution for a century, according to global analyst firm Ovum.

Ovum's latest report "2016 Trends to Watch: Music" points out that no music subscription service is anywhere near breaking even, and the need for scale is far more important than the colour of the balance sheet ink.

Head of Music Practice and author of the report Simon Dyson says, "The recorded music sector of yesterday is quite simply that, a bygone era that is being swept away by shiny new industry players." Dyson added "music retailers will never sell as many CDs or downloads as they did last year and so services along the music value chain that want to be

part of this rapid evolution in recorded music must simply embrace the change and make access work for their business.

The trends to watch for music in 2016 include:

- Streaming will drive digital music growth in 2016, but will not offset the fall in sales of CDs and downloads.
- Intense competition in the music streaming sector will result in more service casualties.
- Controversy over who benefits most from music streaming will continue to make headline news and remain a divisive issue.

The report said that, despite the fact that spending on music subscriptions is on the up, there will be no growth in overall consumer



- 01 -
CINEMA MOUNT

- 06 -
JIFFY

- 07 -
FITBIT BLAZE

- 09 -
ONELINK WIFI

- 11 -
NIKON KEYMISSION 360

- 15 -
FASETTO LINK

- 18 -

ESSENTIAL GADGETS FOR THIS

Chinese New Year

01 CANON MG7770



Gizmos

where technology meets lifestyle

01



06



07



11





01 CINEMA MOUNT PROFESSIONAL SMARTPHONE STABILIZER RIG MOUNT

So you want to use your smartphone like a professional? The Cinema Mount can help with that. It is a lens mount and rig system that works with any smartphone. It comes with an ergonomic hand grip to improve your shooting experience. You also get to adjust your lens to achieve better results. You get wide angle and Macro lenses in this kit. The spring loaded clamp accommodates most smartphones.

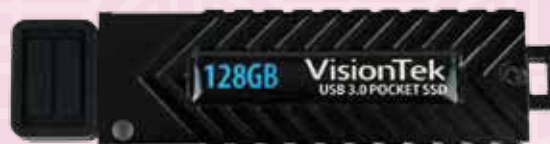
<http://www.amazon.com>



02 VISIONTEK 512GB POCKET SSD DRIVE

Meet the VisionTek 512GB Pocket SSD Drive: a USB 3.0 storage solution that lets you store and transfer your files between your machines fast. It can transfer files up to 20 times faster than regular USB 2.0 flash drives. The VisionTek USB 3.0 Pocket SSD has an aircraft-grade aluminum enclosure. It comes formatted as NTFS but supports other formats.

<http://www.amazon.com> | USD 169.99



03 DOG & BONE KEYLESS BLUETOOTH PADLOCK

Meet Dog & Bone: a Bluetooth padlock that you can control from your smartphone. No need to deal with any physical keys. The device also tracks usage, giving you access to the data on your smartphone. LockSmart relies on 128-bit encryption for security. You can unlock it by Touch ID, a tap, or your passcode. You can share access to your lock from your phone and track who has accessed it. The battery life lasts for up to 2 years. The lock has a stainless steel shackle and a die-cast Zamak-3 zinc alloy body.

www.radioshack.com | USD 89.99



04 **NOMAD: PORTABLE MANUAL ESPRESSO MACHINE**

Meet the UniTerra Nomad: a portable espresso machine that lets you make espresso and coffee drinks anywhere. It does not require any electricity or batteries to work. You will just have to pump the lever and watch the pressure gauge. Adjust your pumping speed to get the right brewing pressure.

www.amazon.com | USD 295.00

05 **BLUP: BUBBLE NOTIFIER**

There are already plenty of smart notification systems that help you keep up with new messages using vibration and sound. Need something different? You may want to build your own bubble notifier. Blup uses bubbles in a container of liquid to inform you of important events. It works for e-mails, social media updates, and other events. As joshcorn explains on Instructables, you are going to need a Nano Air S1 pump, Adafruit Huzzah ESP8266, adapters, resistors, and a bunch of other tools to complete this project.

www.instructables.com



06 **JIFFY: EMERGENCY CHARGER FOR SMARTPHONES**

Here is a tiny mechanical charger that lets you produce power for your smartphone on the go. Jiffy fits in your pocket and lets you charge your smartphone when you don't have access to other power sources. Jiffy can charge multiple smartphones as long as you keep rotating its handle. Jiffy works day and night and can charge iOS and Android phones. You can even use it as a light source.

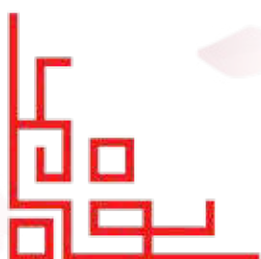
www.indiegogo.com



07 FITBIT BLAZE

Meet the Fitbit Blaze: a smart fitness watch that tracks your workouts (running, cycling, and sports) and provides you with real time stats. With FitStar workouts, you will be able to work on your body. The Blaze provides you with continuous, wrist-based heart rate and zones. You can also use it to control your music or keep up with your notifications. The device has a 5-day battery life. It is sweat, rain, and splash proof. The watch can be personalized with different bands and frames.

www.fitbit.com



08 WESTAND

A portion of each sale goes towards nourishing young brains in developing communities. The weSTAND is an elegant and practical stand for smartphones and tablets. It features a charger entry for you to plug in while Skypeing grandpop, or transfer files to your phone. It is compatible with thicker chargers.

www.kickstarter.com | USD 20.00



09 ONELINK WIFI

Here is a smart safe that protects your things and lets you unlock it from your smartphone. The Onelink WiFi Safe lets you use the Onelink Home app to control it, assign users, and monitor activity. It is designed to protect your valuable items from water and fire. You can bolt the safe to the floor easily. The safe has concealed steel hinges and 6 locking bolts for extra security. It has a motion sensor for tamper detection. The product will make its debut later this year.

www.amazon.com | USD 119.99



10 TP-LINK SR20 TOUCHSCREEN ROUTER

Get your guitar prepped up for a gig in no time with Roadie Tuner, an automatic guitar tuner that is quick, and easy to use. Complemented by a mobile app, this hand-held tuner adds new dimensions to music making by allowing you to freely experiment with alternate and custom tunings. Just attach Roadie Tuner to the peg of your instrument, strum the string, and let the device do the rest. The device is also capable of tracking the quality of an instrument's strings, letting you know when your strings are old and need replacing. What a way to make the other band jealous!

www.tp-linkces.com

11 NIKON KEYMISSION 360 ACTION CAMERA

Meet the Nikon KeyMission 360: a wearable action camera that lets you record 360° video in 4K UHD outdoors. It has an image sensor and lens on two opposite sides and combines captured images to create a high quality 360-degree image. The camera is waterproof to 30 meters. It also withstands dust, shock, and low temperature. The KeyMission 360 comes with an electronic vibration reduction mechanism. It will be available soon.

www.nikon.com



12 VARIDESK PRO PLUS 36

The Pro Plus 36 is a standing desk sized to accommodate those with dual-monitor setups or larger workspace needs. The two-tiered design with separate keyboard/mouse deck gives you plenty of room for basics and accessories with the added convenience of never having to move any components when raising or lowering your VARIDESK.

www.amazon.com | USD 395.00





13 SKLZ PRO MINI BASKETBALL HOOP

A backpack that can indicate your directions and even express your emotions! What more can a cyclist ask for, while being on the road? Okay, the latter is optional. The SEIL bag can do all that with its built-in LED display. It comes with a wireless controller that can be attached to your bicycle's handlebar to transmit traffic signals and directions to the bag. A companion app is also available that lets you design and customise emoticons or images to be displayed on the bag's LED display. Remember to show gratitude to drivers, and try your best not to use words that rhymes with "duck" too much.

www.amazon.com | USD 26.99



14 RUGGIE ALARM CLOCK

Meet Ruggie: a cool alarm clock that helps you get out of bed faster. It forces you to get off the bed and put your feet on it to stop the alarm. You will need to stay on for 3 seconds to turn off the alarm. Ruggie can also play custom audio when you are up and ready to go. You can connect Ruggie to your computer via USB to add custom speeches.

www.kickstarter.com



15 FASETTO LINK NETWORK ATTACHED STORAGE

Rid yourself of the worry over cumbersome storage solutions and their necessary wires and use Fasetto Link, the 2TB Network Attached Storage device. Coming in a black cube shape made of aluminum in durable plastic, Link fits in the palm of your hand and lets you store your data wirelessly. Connecting your device via Bluetooth or Wi-Fi, you can easily access and store your data with the Link app or web browser. Link can handle up to 20 different connected devices and can stream to seven of those devices simultaneously. With the 2 terabytes of storage space and ability to manage loads of devices, Link is the perfect storage solution.





16 NUA ROBOTIC SUITCASE

What's better than a regular suitcase? A robotic one that follows you. NUA Robotics has developed a smart piece of luggage that automatically follows you wherever you go and avoids obstacles. It also recharges your smartphone, tablet, and other gadgets. You get real-time data like weight and location on your smartphone. NUA has sensors and computer vision technology to better serve the user. It can also recognize each specific user.

17 NFC SMART RING

Meet the NFC Ring: a cool ring you can use to unlock doors and mobile phones. You can also use it to transfer information. As long as you have NFC compatible products, you will be able to use a ring like this to control them (e.g. NFC enabled door lock).

www.nfcring.com | £29.99



18 CANON MG7770

With an array of colours to choose from to match your interior design, the new Canon MG7770 printer comes in black, red and the all-new gold colour. The FastFront Design makes ink cartridge replacement, paper stack loading as well as operations and maintenance incredibly easy. The hassle free, step-by-step setup process is possible with the new Canon PRINT Inkjet/SELPHY app which performs a dual role of printer setup and registration.



You can find these products and more in RadioShack outlets at:

- Mid Valley Megamall • Berjaya Times Square
- Bangsar Shopping Centre • Hartamas Shopping Centre
- Pavilion KL • Sunway Pyramid • IOI City Mall
- Avenue K • Sunway Putra Mall
- Gardens (shop-in-shop inside Borders)
- The Curve (shop-in-shop inside Borders)
- Tropicana City Mall (shop-in-shop inside Borders)
- Queens Bay Mall Penang (shop-in-shop inside Borders)
- Gurney Plaza Penang

JBL XTREME

JBL Xtreme is the ultimate portable Bluetooth speaker that effortlessly delivers earth-shaking, powerful stereo sound by incorporating four active transducers and two visible JBL Bass Radiators. Packing a massive rechargeable 10,000mAh Li-ion battery that supports up to 15 hours of playtime and dual USB charge out, this speaker easily keeps your music and your devices going for as long as you need them to. You can trust JBL Xtreme to bring the excitement wherever you need it – whether indoors or outdoors, poolside party or backyard barbeque – with its splashproof fabric design that's available in black, blue, or red. It also features a noise and echo cancelling speakerphone for clear conference calls, and JBL Connect that can wirelessly link multiple JBL Connect enabled speakers together to amplify the listening experience.



LIFESTRAW GO

LifeStraw Go incorporates award-winning technology into a refillable water bottle so you can carry safe drinking water with you on the go. Stop at a river, stream, or even a puddle, fill up the bottle, screw on the lid, and sip filtered water through the mouthpiece. It uses advanced hollow fibre membrane technology to filter up to 264 gallons or 1,000 litres of water to 0.2 microns. It removes 99.9999% of waterborne bacteria, including E. coli and salmonella and 99.9% waterborne protozoa, including Giardia and Cryptosporidium.



SONOS PLAY:5

You'll hear and feel all the emotion and energy the artist packed into the original recording. And connect with your favourite music on a far deeper level. It has six custom-designed drivers with dedicated amplifiers. Trueplay tuning delivers sound that's true to the music and right for the room. You can control all your music and streaming services from a single app (on your smartphone, tablet or computer).

TRIBE MARVEL USB 16GB

Finally together, the Avengers and Spiderman are our only hope to save the planet. With their superpowers, these titans have allied all together in one team to defeat the enemy. Have you already picked your favourite Marvel hero?

Capacity: 16GB

Characters: Captain America, Iron Man, Thor, Hulk, Spiderman



- 60 -
LENOVO YOGA
TAB 3 PRO

- 62 -
DELL UP3216Q MONITOR

- 64 -
ASUS ZEN AIO PRO Z240IC

- 66 -
MICROSOFT LUMIA 950 XL

- 70 -
ASUS ZENFONE 2
LASER Z011D

- 76 -
MSI PHANTOM GS406QE

- 82 -
GARMIN VIRB X

AWARDS



PLATINUM AWARD
Minimum Score: **9.0**
The best of the best and all wrapped into a neat package.



GOLD AWARD
Minimum Score: **8.0**
Outstanding in performance, features and design.



SILVER AWARD
Minimum Score: **7.5**
Above average but yet still deserve recognition.

EVALUATION

- V** **Value** | Expensive does not always mean good.
- P** **Performance** | A measure of how well the product stands up to our testing.
- F** **Features** | The best gimmicks and flashy parts get the top score.
- D** **Design** | Aesthetics are important. The nicer it looks, the more points it gets.
- U** **Usability** | The best for day-to-day tasks are valued higher.

Tested

If it explodes, we'll let you know.



60



64



76

68 SAMSUNG
GEAR S2





TEST LAB GUIDE

Starting this year, we are improving our internal testing methodologies for all components and devices. Also, starting this month we are introducing a new Editor's Choice award for the best product in each category such as PCs, inkjet printers, smartphones and DSLR cameras.



INKJET PRINTERS

- a) Print a reference page for colour images, black and white text using the same DPI settings.
- b) Scan printed pages into Adobe Photoshop using identical settings.
- c) Compare scans from different printers using the Histogram function.

SMARTPHONES

- a) Performance: Using 3DMark and GFXBench GL.
- b) Battery life: Using PCMark for Android.
- c) Camera Quality: Capture the same photo using identical camera settings.
- d) Compare the photos using Photoshop Histogram analysis.



Projector Spectacular

Lenovo Yoga Tab 3 Pro

RM2,000

by daryl tan



With the tablet market having reached the point of saturation, it seems like there is less and less difference between the products in the market. Each tablet seems to look the same, with the main difference being the material the device is made out of. Lenovo, never one to sit on their laurels, has decided that to stand out, you can't just have a beautiful screen, a slim design or the best chassis, you also need it to be a projector for those nights binge-watching Netflix in bed.

PREMIUM FEEL

Picking up the device, the Yoga Tab 3 Pro is definitely one of the more premium products on the market. The tablet uses copious amounts of metal and aluminium all around the chassis, with a soft

leather panel on its back which is both comfortable to hold and really nice to the touch. As if that wasn't enough, Lenovo went ahead and made it P21 certified – this means it is splash proof and can survive accidental spills.

While there are many other premium tablets on the market, where the Yoga Tab 3 Pro truly differentiates itself is the cylinder on its left. Housing the power button and the rear camera, the cylinder has a pop-out kickstand which allows the tablet to stand and also reveals the hidden microSD card panel.

The kickstand itself is really sturdy, and allows quite a degree of flexibility when positioning the tablet, not unlike Microsoft's Surface line up. So what's so game changing about the cylinder? I mentioned that it's the tablet's differentiator, but it isn't the kickstand I'm talking about – it's the built-in projector.

PORTABLE CINEMA

Yes, there's an actual projector built right into the cylinder of the tablet, and the short of it is that it's pretty dope. Activated by pressing the dedicated projector button on its side, the 480p pico projector can project up to 70-inches at 50 lumens. Once the projector is set up, the software will automatically adjust the picture's keystone and sharpness. A good many hours were spent watching Netflix in the comfort of my bed and I was really impressed with the quality of the video. Battery life is also pretty impressive with the projector on. Having streamed Netflix for almost 3 hours straight, the tablet only lost 40% of its charge, which means it'll still last the rest of the day without being plugged in.

Of course, being a pico projector, it doesn't come anywhere close to the quality of a full-size projector. It isn't particularly



bright, the colours don't pop and its relatively low resolution means images aren't the sharpest. Basically, if you want a truly cinematic experience, there are many projectors out there that are far more qualified to do the job. The kicker is that most of them don't come attached to a fully-functional tablet. The ability to carry a small tablet to a friend's house and project a 70-inch image onto a wall offers a truly unique experience to be shared.

JBL STEREO

Having included four front-facing speakers, the Yoga Tab 3 Pro delivers one of the best audio experiences on any tablet in the market today. The treble was sharp and the mids were full of life. Even the bass sounded pretty chunky. Putting the tablet next to its competitors such as the iPad and Samsung Galaxy Tab, the Yoga Tab 3 Pro simply blew its rivals out of the water.

The included Dolby audio app allows further customisation of the soundscape for the musically inclined, though I personally felt that the sound was already excellent out of the box. Having that many speakers also means that the volume can get pretty loud; this proved excellent when watching movies in the hall with some boisterous folk in tow.

BRILLIANT SCREEN

While praises have been sung about its pico projector, what about when the tablet isn't used as a movie projector, but as a...

tablet? Thankfully, Lenovo has packed what is possibly one of the best displays on the market. The superb 2560 x 1600 QHD resolution means that texts and images were extremely sharp and colours were threatening to pop out of the screen. Brightness levels were excellent, allowing good legibility even in direct sunlight despite its reflective nature. If there is something to be said about the display, it's more oversaturated than balanced, leading to colors that pop rather than those that are accurate.

Lenovo has also done something pretty nifty with its display as its AnyPen feature allows any conductible material to interact with the screen like a stylus. This means that you can still use something like a pencil rubber to navigate the device even when your fingers are covered with cookie crumbs.

MIDDLING PERFORMANCE

Unfortunately, while the visual experience impressed, general performance around the OS left much to be desired. Despite packing one of Intel's latest chipsets, navigating around was a laggy affair. There were stutters throughout the OS, whether I was just scrolling through the app drawer, entering into the settings menu and just opening apps. Opening the multitasking view also displayed dropped frames.

Once the app is in view however, general performance was decent, with minimal dropped frames even with the latest games. While the high resolution display might be to blame, I suspect it's mostly on the software

optimisation side; Lenovo has a lot of work to do to improve the overall experience of the tablet. At best, it's an annoyance and at worst it can get pretty frustrating as it lags even for minimally taxing tasks.

ENTERTAINMENT TABLET

The Yoga Tab 3 Pro is without a doubt one of the premier entertainment-focused tablets in the market today. Its built-in pico projector is a killer feature, and it backs it up with excellent audio and superb battery life. Even with the projector off, the vibrant and beautiful display will ensure that any form of media consumption is done with a smile on your face.

What might wipe that smile off though is the constant lag experience when navigating around the device. While it's not exactly deal-breaking, it's jarring seeing the OS lag when everything else around it feels so good. Still, regardless of its software niggles, the tablet is likely to satisfy almost any movie junkie out there. **PC**

SPECS

SIZE: 247 x 4.68 x 179 mm, 664g
DISPLAY: 2600 x 1440 IPS
 OS: Android 5.1
PROCESSOR: Intel Atom x5-Z8500
RAM: 2 GB
STORAGE: 32GB
MICRO-SD: Up to 128GB
CAMERA: rear-facing 13MP, front-facing 5MP
PROJECTOR: Casts up to 70-inch image
AUDIO: 4 Front-facing JBL Speakers with Dolby Atmos
BATTERY: 10200mAh, up to 18 hours usage
CONNECTIVITY: GPS, Voice call, 4G LTE, Bluetooth 4.0
INTERFACE: microUSB slot, 3.5mm analog jack, Micro SIM card slot



VERDICT

A nice Android tablet with a built-in projector.

SCORE
8.4

daryl tan



Quality at a Price

Dell UP3216Q Monitor **RM5,093** by ajith ram



There is no question that ultra-high definition (UHD) monitors represent the future of display technology, but as is the case with the content they are designed to show, the monitors themselves are not that plentiful in the market. If the recently concluded CES is any indication, then we will soon be flooded with a plethora of UHD monitors including some built with OLED.

Until the newer versions arrive later this year, discerning users can choose between a few UHD LCD monitors already available such as the Dell UP3216Q.

HIGH ON ALL COUNTS

The Dell UP3216Q is a 32-inch monitor with a maximum resolution of 3840 by 2160.

Compared to the regular full HD monitors that are available aplenty, this monitor's price is also on the other end of the scale. This is definitely a monitor aimed at elite end of the professional market.

GREAT DESIGN

As with other Dell monitors and even a few from other manufacturers, the Dell UP3216Q has a black with brushed aluminium design. The black bezels and surfaces have a nice matte finish. The panel itself has a non-reflective, anti-glare coating. This is far more appealing in a workplace environment than highly reflective glossy screens.

There are also six touch-sensitive buttons including the power switch positioned along the lower right side of the monitor. The monitor stand has a brushed

aluminium finish which is all the rage these days. Although larger and thicker, it reminds one of the Asus Zen AIO PC stand. The stand also has a mounting arm for holding the large and heavy panel.

The UP3216Q can be tilted quite a bit horizontally and vertically to achieve the best viewing position. But keep in mind that the panel cannot be rotated 90 degrees or even close to it for a portrait feel. Hardly surprising considering the size of the panel itself. The Dell UP3216Q monitor can also be wall mounted. Considering its sheer size, it will make an excellent replacement for a 4K TV, albeit an expensive one.

PORTS GALORE

The UP3216Q is equipped with two DisplayPorts, an HDMI port and five USB

3 ports. All the ports are tucked away at the back of the cabinet and not that easily accessible. It would have been better if at least the USB ports were split along the twin sides of the monitor. The included 6-in-1 card reader is also a welcome addition.

The UP3216Q can be customised using the on-screen-display menu system. There are no depressible buttons, only touch-sensitive buttons on the bezel itself. There are seven preset modes available - Standard, Multimedia, Movie, Game, Paper, Colour Temperature and Colour Space.

We suspect most regular owners will not bother mucking around with the preset colour settings and will stick with the default Standard settings. In our tests using 4K videos and PC games like Need For Speed, we could not see a dramatic difference between the seven presets, particularly the first five.

COLOURFUL OPTIONS

The last two presets are obviously aimed at the professional designer. This category of buyers require precise control over colour grades and colour temperature.

The colour Space selections include Adobe RGB, sRGB and two calibrated modes. The Adobe RGB colour space is an RGB colour space developed by Adobe Systems in 1998. It was designed to encompass most

of the colours achievable on CMYK colour printers, but using RGB primary colours on a device such as this monitor.

sRGB is a standard RGB colour space created cooperatively by HP and Microsoft in 1996 for use on monitors, printers and the internet. sRGB used a gamma curve typical of CRTs in the 1990's. This specification allowed sRGB to be directly displayed on typical CRT monitors and helped its acceptance worldwide.

There has always been dispute in the industry over which colour specification offers the greatest range. Overall, these days, most professional artists prefer to stick with sRGB as it is now an accepted global standard.

But fans of Adobe RGB need not be disappointed. Adobe RGB has a reputation for requiring expert software to setup and that is exactly what this monitor provides. This Dell monitor comes with its own calibration software. This allows you to tweak the colour settings to your heart's content.

The UP3216Q has brightness, contrast settings and there are PC, Mac gamma settings as well. The DisplayPort 1.2 setting allows the monitor to display the image at 60Hz although it is set at 30Hz by default. But you will need to pair it with a suitable graphics card that can output 4K images at 60Hz.

Many PCs with integrated graphics

and low-end GPUs do not ship with a DisplayPort at all. However, this should not be a problem for the buyers of this monitor as they would likely be graphics professionals with workstation-class graphics cards such as Nvidia Quadro and AMD Fire Pro.

EXCELLENT IMAGE QUALITY

The UP3214Q's image quality is excellent – exactly the key feature demanded by the design professionals that it is aimed at. 4K photos and videos look stunning on this monitor with excellent levels of contrast between the light and dark areas. If you are seeking a monitor which can display dozens of shades of a particular colour with clear separation between them, then you do not have to look beyond this Dell monitor.

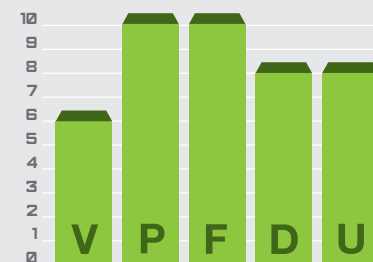
The eight millisecond response time of the UP3214Q is not the fastest around from a gamer's perspective. But the picture quality is beyond compare. This is particularly evident while playing a horror game like SOMA which has a lot of areas of grey and absolute darkness. This monitor can immerse you in such games like no other.

There is no question that the Dell UP3214Q monitor is one of the best that money can buy. **PC**



SPECS

MAXIMUM RESOLUTION: 3840x2160
RESPONSE TIME: 8 milliseconds
CONTRAST RATIO: 1000:1
I/O 4 USB 3.0 ports, 1 HDMI 1.4
DISPLAYPORT 1



VERDICT

A very good monitor suitable for the professional market.

ajith ram

SCORE
8.5

A Thing of Beauty

Asus Zen AiO Pro Z240IC

RM5,599

by ajith ram

As soon as the Asus Zen AiO Pro Z240IC arrived at our office, it immediately kicked off a conversation about a similar product from the other 'A' company. Deliberate or not, there is no question that the new Asus Zen AiO bears a striking similarity to some the Apple iMac.

Not a bad thing as both are certainly objects of great beauty. The Asus Zen AiO Pro Z240IC has a 23.8-inch glossy full HD LCD screen. We have mixed views on the screen. In regular office lighting conditions with fluorescent lighting, there will be a lot of reflection from many angles. You might want to consider getting a matte screen protector. The screen is also not touch-enabled, a real shame as the minimalist design of this device cries out for a mouse-free look.

PORTS APLENTY

The PC has the usual array of ports, all tucked away at the rear bottom of the

screen. These include USB 2.0, USB 3.0, SD card reader, mic-in, audio-out, two HDMI ports and a USB Type C port. There is also a hidden row of exhaust vents at the bottom of the screen facing directly downwards.

DECENT HARDWARE

The Asus Zen AiO Pro comes in two flavours. The lower priced version uses the Intel Core i5 CPU and the Nvidia GeForce GTX 950 GPU while our test version had the 2.8GHz Core i7 6700 CPU and the GTX 960 GPU.

In addition to the massive 16GB of RAM, there is also an additional 2GB attached to the Nvidia GPU. Like many laptops and portables these days, the 2D desktop is powered by the Intel 530 integrated GPU while gaming and 3D applications will switch to the discrete Nvidia GPU.

Audio is provided by the ubiquitous Realtek HD audio. Users also have the option of using one of the HDMI ports for HD audio using the services of the Nvidia

GPU. The Asus Zen AiO Pro also ships with a slim Bluetooth keyboard and mouse.

GOOD PERFORMANCE

The performance of the Asus Zen AiO Pro cannot be called revolutionary. We also noticed some performance throttling during intensive gaming and benchmarking. Although heat was never an issue, overall performance did fall off after more than half an hour of intensive use.

In terms of software, there are no bells or whistles added on top of the Windows 10 Home installation. This Asus PC is definitely not for the passionate PC gamer. Considering its overall design, it is clear that the company has targeted the Zen AiO Pro at households and office users. From the perspective of that owner, it is an object worthy to be in the living room and become the neighbour's envy. **PC**



SPECS

PROCESSOR: Intel Skylake i7 6700
GRAPHICS: Nvidia GTX 960M
MEMORY: 16GB
STORAGE: 1TB HDD
DISPLAY: Full HD glossy panel
OS: Windows 10 Home



VERDICT

A thing of beauty is a joy for ever. Very usable too.

ajith ram

SCORE
8.8



Music For The Lavish

Sony NW-ZX100

RM1,750

by jan shen

It was more than two decades ago that Sony released the first Walkman. It became a sensation as music listeners could experience music on the go. It is fair to say that the Walkman was the first ever product to give the music industry all over the world a major boost.

When Sony finally decided on infusing the Walkman culture into their not-so-popular cell phones, sales went bananas. However, the idea wasn't difficult to imitate as Nokia, Apple, and Samsung took over the market throughout the last decade by including similar functions in their products.

The Walkman was then almost forgotten. As streaming music becomes the industry norm for how we listen to music using services such as Spotify and Apple Music, the Sony NW-ZX100 has introduced itself

as a delightful throwback to the not-quite-retro and yet not so distant past.

SOPHISTICATED DESIGN

As a norm, comparing a new product with its predecessor is very much a must. The NW-ZX100 is a definite uplift from the previous Walkman version in terms of hardware design and device casing. Specifically, the NW-ZX100 features a high rigidity frame, low dielectric board and enhanced solder impedance to ensure the top music listening experience on-the-go.

The NW-ZX100 only comes in metallic silver and a black leather backing, which gives it a touch of class and comfort to its user. Judging from its common flagship design, the NW-ZX100 is just as polished as demonstrated by the shiny golden audio jack and stylishly engraved Walkman logo.

CANDY TO THE EARS

First and foremost, Sony kept the S-Master HX amplifier to the NW-ZX100, which never fails to impress by delivering top notch quality music. Usually, with other music players, trying them with Jamie XX's "There's Gonna Be (Good Times)" gives them a mixture of odd vibes.

The NW-ZX100 was able to differentiate the low key reggae bass up to the clear cut high pitched rap percussions. Eagles' "Hotel California" also plays well, while giving an imaginative and realistic serenading session. It felt so real as though there was a romantic nearby singing to his lover.

While maintaining the old specs, Sony also added the Direct Stream Digital (DSD) and Digital Sound Enhancement Engine (DSEE HX) which sees a never ending possibility of upscaling compressed audio picks to a level closer to High Res audio and as well projecting clearer and crisper audio quality.

BACK TO THE FUTURE

Remember the times when the trend was having the Sony Ericsson Walkman phones, where there were no touch screens and songs were shared through Bluetooth? Well,

Sony decided to bring back those delicate memories, applying the same features to the NW-ZX100.

Apart from the vintage-styled features and design, the NW-ZX100 is rated to run 45 hours on Hi-Res audio and 70 hours on normal MP3 audio formats. There was never a time that the device had to go for a charge even through days of playing it regularly.

Sony clearly wants more options for their listeners to experience music at the highest and most convenient level. By including the Near Field Communication (NFC) technology, high quality Bluetooth streaming, LDAC and an extra MicroSD card Slot, listening to music has become a whole lot broader in terms of options and convenience.**PC**

SPECS

AVAILABLE COLOUR: Silver
INTERNAL MEMORY: 128GB
EXTERNAL MEMORY: microSD, microSDHC, microSDXC
DISPLAY SIZE/ RESOLUTION: 3.0 inch, TFT color LCD, QVGA (400x240)
INTERFACE: Hi-Speed USB(USB 2.0 compliant), Stereo Mini Jack, WM-PORT (multiple connecting terminal) 22 pins
COMPATIBLE FORMATS: FLAC, Apple Lossless (ALAC), MP3, AAC5, HE-AAC, WMA6, Linear PCM (WAV), AIFF, DSD7
WEIGHT: 145g



VERDICT

A luxury portable music player with flawless audio quality.

SCORE
8.6

jan shen



Unfulfilled Potential

Microsoft Lumia 950 XL

RM2,999

by daryl tan



When Microsoft unveiled Windows 10 mobile, it promised further blurring of the lines between phone and desktop, namely, that continuum would be coming to all Windows phones. The idea is that you can take your phone when you're out and about, and when you come home, plug it into the display dock and instantly have a desktop experience with your mouse and keyboard.

After a slew of cheaper alternatives, the launch of the Lumia 950 XL is supposed to herald the coming of Microsoft's dream to marry desktop and mobile. Did it pull it off?

AVERAGE DESIGN

For all its bluster announcing the range-topping Lumia 950 XL, this phablet doesn't exactly scream premium. Built out of a combination of glass and plastic, the 950 XL seems to see Microsoft hitting an upper ceiling with regards to design.

It looks like the Lumias of old, with nary any innovation in terms of looks. The camera hump inherent to all camera focused Lumias is still there, and the general look of the device is just staid, for lack of a better word. In an era where even budget phones are adopting a more premium shell, buyers of the Lumia 950 XL

might feel a little short changed.

Of course, it isn't all bad news; the plastic shell of the 950 XL does provide a solid grip, which is something that can't be said for the increasing number of smooth, metal shells in the market today. Having a plastic back also means that the 950 XL has an honest-to-goodness removable back, giving access to a removable battery. The 3340mAh battery will normally last you well through the day, but for those days where the emails are streaming in, it can be comforting for power users to know that the option to switch in a fully charged battery is there. Additionally, the inclusion of both a microSD card slot as well as dual



SIM trays makes the 950 XL a far more flexible device than you would expect at first blush.

CLEARBLACK DISPLAY

The design of the 950 XL may be stuck in the past, but the display of this device is no slouch. With a razor-sharp WQHD screen, the Lumia 950 XL has the highest display resolution of any Windows mobile device released to date. Image reproduction is excellent; colours are robust, text is sharp and images are rich in detail. The brightness level of the display is also pretty good, remaining visible even under direct sunlight. The AMOLED ClearBlack panel here really shines and can definitely hang with the big boys such as the Galaxy Note 5 and Galaxy S6.

One slight downside to the device is that the display tends to produce a bluish tinge, especially on a white background. This is more apparent when viewing the display off-angle, though we don't believe this will have a significant impact on usability.

WINDOWS 10

As the first device running Windows 10, the 950 XL and its younger brother the 950 are the culmination of Microsoft's vision of a unified platform. Hence the removal of the 'Phone' branding from its mobile device. That doesn't mean too much has changed on the mobile front though. The iconic Windows live-tiles are still there, and thanks to the huge screen and customisability of the tile size, you can potentially see a smorgasbord of apps the second you unlock the device. The real reason why you would consider a Windows 10 device in an age of iOS and Android dominance however, is Continuum.

To use Continuum, Microsoft sells the proprietary Microsoft Display Dock, which comes with a whole host of ports such as USB 3.0, HDMI and even DisplayPort. This allows you to connect your keyboard, mouse and monitor to the Dock, allowing a true desktop experience. Simply connect the 950 XL to the Dock and a universal app opens on screen. Everything you expect to see is there, such as the start button, Task View and the Task Bar at the bottom. Classic windows shortcut keys such as Ctrl+C and Ctrl+V are also included.

So is Continuum worth it? Unfortunately, the short of it is yes, and no. Continuum does a great job mimicking the full desktop experience, but its limitations become apparent quickly. As it is still the mobile version of the OS, full 32-bit and 64-bit applications cannot be installed as it only accepts apps from the Windows Store. There is no right click, no pinning of apps to the 'home screen', no Windows Snap to pin multiple webpages next to each other and each app fills the whole screen, removing any sense of multitasking.

There is a general lack of functionality you would expect from a full-blown Windows device, resulting in something of a poor man's Windows RT, which is quite underwhelming considering what Microsoft promised during the announcement. Using Continuum consistently felt like using a phone with a big screen, which while handy, falls far short of what we expect when we're sitting at our desks trying to be productive.

Also, despite using Qualcomm's Snapdragon 810 chipset, Continuum consistently lagged when I used it on a WQHD monitor even though it had the same number of pixels as the 5.7" screen on the 950 XL. The Edge browser was painfully slow, and some apps simply refused to load while in Continuum.

Outside of Continuum however, the performance of the phone is superb, with no slowdowns whatsoever. This might just be an optimisation issue with Continuum, which further hampers Microsoft's unification efforts.

WEAK EXECUTION

The 950 XL was supposed to be Microsoft's answer to a mobile landscape that is currently practically a duopoly. Unfortunately, some poor design choices (both hardware and software) threaten to derail its efforts before it even gets its foot out the door. Make no mistake, there are a lot of great ideas to Windows 10 mobile, and its functionality is nothing to scoff at.

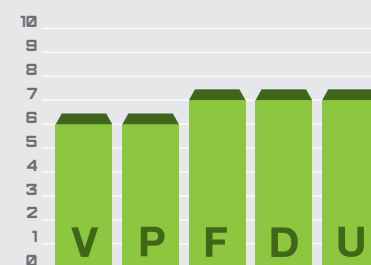
Regardless, the persisting lack of compelling apps and half-baked Continuum feature will struggle to convert the masses who are already waist deep in their iOS and Android ecosystems. There is word on the street that Microsoft is reserving its

best ideas for a new Surface lineup of smartphones, and maybe that's the one you should wait for if you're opposed to the current market offerings. As the swansong of the Lumia lineup however, the 950 XL is going out with more of a whimper than a bang. **PC**



SPECS

DIMENSIONS: 151.9 x 78.4 x 8.1 mm
WEIGHT: 165 g
OS: Windows 10 Mobile
DISPLAY: 5.7 inches, 2560 x 1440
PROCESSOR: Qualcomm Snapdragon 810
GRAPHICS: Adreno 430
MEMORY: 3 GB RAM
CAMERA: 20MP rear camera, 5MP front-facing camera
STORAGE: 32GB
PORTS: microSD up to 200GB, 3.5mm audio jack, USB-C
SIM: Nano Sim
BATTERY: 3340mAh removable Li-Ion



VERDICT

The best Lumia yet, but still not good enough

daryl tan

SCORE
6.6

Smartwatch for All Occasions

Samsung Gear S2 **RM1,300**

by selva rajan

DC reckons the wearable market will grow at a compounded rate of 28% annually. Among the main contributors to the growth will be smartwatches which made up for 34 million units shipped this year and the forecast is to reach 80 million in the next five years.

Android and iOS are the two main players in the wearable watch market with Samsung shaping itself as a differentiator with its own propriety operating software to become a key contender in the segment.

The world was first introduced to the Samsung smartwatch, the Gear S back in 2014. The second iteration was just launched this year in October with an improved specification and better performance.

AROUND THE WRIST

Samsung has taken the conventional route for the design, going with 99% of watch designs in the market, the company has stuck with circular as its choice while a certain brand went square.

In terms of size, the watch fits snugly at 51.8 x 44 x 13.4 mm, a standard wrist watch

size and has a diameter of 1.2 inch with 360 x 360 AMOLED display, which is rather bright even in daylight. Interesting to note is how the screen comes alive whenever you tilt to look at it, a clever energy saving feature that will help keep the battery running longer, a gripe for many as common smartwatches require charging every 2-3 days. Gear S2 lasted a fraction more and uses wireless charging method to juice up.

The model PC.com received was the Bluetooth White sport edition with a rotating silver bezel, a unique feature that allows easy navigation of functions by jogging it left and right. Other models available include a Grey coloured version, Classic with leather straps and 3G variations as well.

There are two buttons on the one side for home and the other, a back button. The stainless steel case and Gorilla glass adds elegance and rigidity. The weight coming in at just 51 grams its lighter than AppleWatch!

EASY FUNCTIONS

First time users of this device will have no problem understanding the instruction or the complexity of the device, it's basically

ready-to-wear out the box. Simple setting of time, date and pair with your android phone via Bluetooth and you're set. The touch screen is intuitive with no lag or responsive issues,

The open source Tizen operating software works seamlessly with any Android device. in our case we paired it with the Galaxy S6 and notifications were instantly pushed to the watch. Reading messages wasn't difficult. You can either touch the screen or use the bezel. I really wished we had this during our exam days.

However, despite the lack of apps on Tizen, there is enough to make this device worth the RM1,399 price tag, like fitness trackers, S Health, Nike+ and CNN. Also, there are many watch faces to choose from. Personally, we like the chronograph. **PC**

SPECS

PROCESSOR: Exynos 3250

RAM: 512MB

STORAGE: 4GB

BATTERY: 250 mAh Wireless Charging

WATER RESISTANT: IP68

DISPLAY: sAMOLED 360x360 (302ppi)

OS: Tizen



VERDICT

Cleverly thought out and designed smartwatch, a fitting choice for anyone.

SCORE
8.6

selva rajan



Selfies with a Polaroid

Fujifilm Instax Mini 70

RM598

by vino nair

Everyone gets excited when they see a Polaroid camera; thanks to its instantaneous pictures. Due to its cult following, Fujifilm has not stopped producing them and many are grateful for it. So imagine our glee when this camera came into our labs for review.

Though it is not as sophisticated as the many cameras that come into the market these days, the new Fujifilm Instax Mini 70 joins a legion of iconic cameras, and what makes this one any different? Let us tell you why.

SIMILAR, YET DIFFERENT

Easy to operate, this camera is ideal for newbies or those who simply love Polaroid pictures, since you do not have to read complex manuals to understand and use the camera.

Unbox it, pop in the batteries and load the instax colour film and you are good to go. Do take note though, you can only use the instax film meant for this camera, and not from other brands.

Now that the camera is fully loaded and is ready for action, after reading the easy user manual that is, we immediately found

the feature we were hearing about for the Instax Mini 70.

While still being loyal to the Polaroid genre, Instax Mini 70 has added something new to it – the SELFIE mode. Needless to say, this new feature will quickly catch on with the new tech generation, who seem to love taking selfies.

The Selfie mode allows you to take pictures of yourself promptly, while providing appropriate brightness and shooting distance for self-portraits. If you are worried that the picture might not come out right, don't worry. The camera has a mirror next to the lens in front, which allows you to make sure you are in frame.

Another feature that we found useful is the Automatic Exposure Control, which captures bright backgrounds as well as bright subjects even in dark scenes. The high-performance flash automatically calculates surrounding brightness and adjusts shutter speed accordingly. You do not need any special settings and this makes taking pictures such a joy.

And if you do find pictures turning out dim, then turn on the Hi-key mode and you can capture bright beautiful pictures, or even make your skin appear brighter and beautiful in your selfies.

The Self timer mode is also useful in this camera, as it allows you to take one frame or two frames continuously shooting. So you need not worry about missing a shot when taking pictures. Oh and it also comes equipped with a tripod socket.

For the joy of taking instant pictures that are on film as quickly as you take it, get the Instax Mini 70. Besides the vibrant Canary Yellow camera that we have, there is also the bright Moon White, or Island Blue colours that you can get. **PC**

SPECS

FILM Fujifilm Instant Color Film "instax mini"

FILM SIZE 86mm x 54mm

PICTURE SIZE 62mm x 46mm

LENS Retractable lens, 2 components, 2 elements, f = 60 mm, 1:12.7

VIEWFINDER Real image finder, 0.37x, with target spot

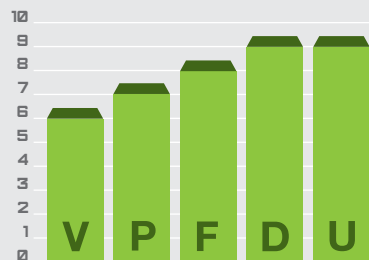
SHUTTER SPEED Programmed electronic shutter release, 1/2 sec - 1/400 sec.

FILM DEVELOPING TIME Approximately 90 seconds (Varies depending on the ambient temperature)

SELF-TIMER Electronically controlled, approx. 10 second delay, Continuous shooting mode can be stopped mid-run

DIMENSIONS & WEIGHT

99.2x113.7x53.2mm (W x H x D) (not including protrusions) / 281g (without battery, strap, and film pack)



VERDICT

The only instant selfie camera you need

SCORE
7.8

vino nair

Bulking Up

ASUS Zenfone 2 Laser Z011D

RM1,099

by rkl



ASUS's Zenfone 2 is not just a mere smartphone, it is a platform on its own. There is the original Zenfone 2, the selfie-centric Zenfone 2 Selfie, the rear camera centric Zenfone 2 Laser, and the beefier Zenfone 2 Deluxe. Now, with the Zenfone 2 Laser Z011D, the company is giving the Laser a separate configuration of its own. So what is the difference between the standard Zenfone 2 Laser and the Z011D? The answer is size.

THE SAME BUT BIGGER

Up till now, all of the Zenfone 2 phones sported a smaller 5.5 inch screen. For the Z011D, ASUS has decided to ramp the screen size up to 6 inches. This officially puts the Z011D into the phablet category. Aside from the screen size though, nothing else has changed in regards to the overall design of the Z011D when compared to other Zenfone 2s. If you've seen any variant of the Zenfone 2 before,

the Z011D is almost exactly the same, albeit bigger.

IN THE MIDDLE

For performance, the Z011D sports components that would safely put it in the mid-range smartphone category. The phone is powered by an octacore Qualcomm Snapdragon 615 with an Adreno 405 GPU. It has 3GB of RAM and 32GB of storage space which is expandable via microSD for a maximum of 128GB. As usual, the Z011D



runs on Android 5.0 KitKat with Zen UI on top of it.

LASER SIGHTS

As part of the Zenfone 2 Laser series of smartphones, the Z011D's strong point is its rear camera. The rear camera on this smartphone has 13MP sensors and features a 5 element lens and has a f/2.0 aperture. It also comes with a dual tone LED flash and a laser assisted focus system, hence the 'Laser' moniker. The front camera is a standard 5MP camera.

WITHIN LIMITS

Performance of the Z011D is pretty much what I've expected for a phone in the Zenfone 2 line. The Z011D performs well on your standard smartphone stuff such as checking emails and messaging. Multitasking is smooth as well, seeing as I am able to switch between applications without any noticeable stuttering.

High intensity applications such as games are where the Z011D starts to choke, but seeing as how it is a mid-range phone, that pretty much is a foregone conclusion. One other thing to note is that because the phone has a 6-inch screen, one handed navigation is going to be harder for those who have smaller hands.

ONE POINT OF LIGHT

Now, for the main attraction: the camera. Much like its smaller sibling, the Z011D's laser assisted focusing is precise and accurate. In fact, I'd even say that the laser assisted focusing is a tad more accurate on the Z011D than it is on its predecessor.


Image quality does seem to be improved as well, as this smartphone yields a slightly clearer picture in brightly lit conditions. Low light photography on the Z011D seems to be pretty decent overall, producing clear pictures with some amount of noise. Granted, it's not perfect, but it is far from unusable either. The Z011D's camera UI remains largely unchanged, featuring modes and settings that are almost identical between all the Zenfone 2 smartphones.

ALL OTHER PIECES

Since the Z011D is bigger than the vanilla Zenfone 2 Laser, ASUS has decided to provide it with a bigger battery. The 3,000mAh battery gives the Z011D a slight boost in longevity when compared with its smaller sibling under standard day-to-day usage. Under normal use, the Z011D can last an entire day before a recharge is needed. That said, if you're a heavy phone user, you might want to lug

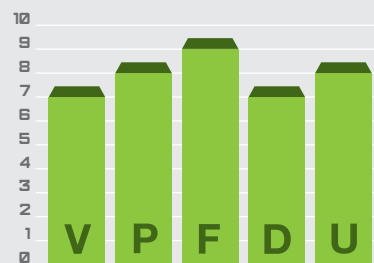
a spare power bank around as the battery doesn't last long under extremely heavy usage (read: GPS usage).

MORE OF THE SAME

I'm going to be honest, I was actually struggling to write this review because for the most part, the Z011D is just yet another Zenfone 2, except bigger. Sure, the Z011D is an amped up version of the Zenfone 2 Laser, but besides that, everything else is almost the same. If you already own any variant of the Zenfone 2, the Z011D can be ignored as it really doesn't distinguish itself from any of the other variants aside from the size. That said, if you're looking for a smartphone that is big, has a decent camera, and you are yet to try out a Zenfone 2, the Z011D may be what you're looking for. 

SPECS

WEIGHT : 190g
DIMENSIONS : 164.6 x 84 x 10.6 mm
PROCESSOR : Qualcomm Snapdragon 615
MEMORY : 3GB
GRAPHICS : Adreno 405
STORAGE : 32GB internal, expandable to up to 128GB via microSD
DISPLAY : 6" IPS LCD capacitive touchscreen, 1080 x 1920
CAMERA : 13 MP f/2.0 aperture rear camera with Laser autofocus and dual LED flash, 5MP front camera
OPERATING SYSTEM : Android 5.0 Lollipop with Zen UI
CONNECTIVITY : Bluetooth 4.1, Wi-Fi 802.11 a/b/g/n/ac
BATTERY : 3000mAh Li-Ion



VERDICT

It's a Zenfone 2 Laser, but bigger.

SCORE
7.8

rkl



Sounding Off

Asus Strix Raid Pro 7.1 PCI-E Sound Card

RM TBA

by andrew tong



Asus had unveiled three new game-oriented sound cards to its owl-themed Strix family at Computex last year. They are the Strix Raid DLX, Strix Raid Pro and Strix Soar. Recently I got to review the Strix Raid Pro.

According to Asus, Strix Raid Pro is a premium sound card built with audiophile-grade components to satisfy gamers who demand ultimate audio performance and

this particular sound card slots in between the Strix Soar entry level model and the Strix Raid DLX flagship sound card.

PREMIUM COMPONENTS

Asus uses high grade Nichicon capacitors which are renowned for their fantastic audio characteristics in Strix Raid Pro. Besides, they are using the TI TPA6120A2 headphone amplifier chip which is a very accessible broad partnering design to

accommodate a wide range of headphones. To be more specific, this processor is able to drive a wide range of headphones from 16 to 600 ohms.

Other components on the PCB of Strix Raid Pro is the ESS Sabre9006A D/A converter chip which delivers up to 116dB of resolution, which in my opinion, is a good choice at the given price point. Asus has also paired up the CM6632AX audio processor with full 192kHz/24 bit support



and CS5361 A/D converter which has a 114dBa dynamic range.

One of the biggest issues faced by sound cards is that they live inside a box pulsing with electromagnetic interference. This is why many audiophiles recommend an external sound solution. Asus has gone to great lengths to solve this in Strix Raid Pro, starting with a large EMI shield that covers most of the card to block out interference inside the chassis. It also doubles up as a protective shield for the capacitors and other sensitive components.

What impressed me more is that they use a four layer PCB, with two layers of ground incorporated to separate digital and analog digital interference. Linear LDO (low drop out) regulators are also used and power source is independently supplied to DAC and regulated twice to reduce power noise, heat energy and to stabilise power.

PLENTY OF OUTPUTS

Sound outputs on Strix Raid Pro come in the form of six 3.5mm stereo mini-jacks, one of which serves double duty as an SP/DIF output. There's also a plug that connects to

the Raid controller, a large dial that is meant to reside on your desk beside the keyboard to allow you to control volume and enable or disable Raid mode.

Speaking of Raid mode, it allows users to access and control four settings which are bass boost, microphone volume, EQ and virtual surround. Installing the drivers for the setup was pain-free, a nice surprise, and the ability to tweak everything on one screen is handy.

HEADPHONE MODE

The headphone amp aspect of Strix Raid Pro deserves a special mention. I had tested the sound card with a pair of Audio Technica ATH-M50X headphones and it turned out that the sound quality delivered was significantly good and the headphone amp had no problems driving them. When paired up with a quality pair of Razer 7.1 gaming headphones, the overall experience was highly entertaining.

GREAT PERFORMANCE

I couldn't hear the merest hiss of interference even at high volume and

the virtual surround effect was especially noteworthy. All the tested headphones sounded extremely punchy and focused. However, sound quality when connected to my Klipsch R110SW had one issue. There's no LFE sub-woofer control. Therefore my Klipsch R110SW is being forced to output the bass incorrectly, leaving a huge frequency gap in the 120-200hz range.

It is true that even the best on-board audio solutions have no sub-woofer control, but I'd still expect to have control over such a feature at this price point. There is also no Dolby upmix packages included for analogue speaker outputs and the inbuilt upmix sounds narrow and terrible.

All in all, Asus Strix Raid Pro 7.1 is the new king of discrete sound cards for gamers. It has a relatively powerful headphone amp, delivering beautiful sound and comes with a handy volume control dial and is made of high grade components on PCB including Nichicon capacitors. The only let down is that it has no LFE control for the sub-woofer, which could be an issue if you have a quality sub-woofer without its own LFE dial.**PC**



SPECS

OUTPUT SIGNAL-TO-NOISE RATIO:

116dB

HEADPHONE: 110dB

LINE IN: 110dB

OUTPUT TOTAL HARMONIC

DISTORTION + NOISE: 0.001% (-100dB)

HEADPHONE: 0.003% (-90dB)

FREQUENCY RESPONSE: <10Hz to 48kHz



VERDICT

An excellent sound card for gamers and audiophiles

andrew tong

SCORE
8.8

Small But Magical

MSI B150 M Night Elf

RM TBA

by din



While most of the gaming motherboards for the Intel 6th generation Core processor, aka the Intel Skylake, out there on the market right now is equipped mostly with the high end Intel Z170 chipset, some people do not really want all the features that are present in the chip. Some just want a no nonsense, good to go motherboard with a chipset that just does the job, as well as a bit cheaper.

Hence today, we will take a look at MSI's offering in this segment. Equipped with the much cheaper Intel B150 chipset, this gaming motherboard looks like a good answer for those wanting a good motherboard without having to break the bank.

DIAL M FOR MINI

The MSI B150M Night Elf motherboard comes in a rather swanky red box, featuring what else, but an elf on the front

of it. The box, as with many motherboard boxes nowadays is two tiered, with the motherboard in an anti-static shield on top. On the bottom, all the other extra peripherals can be found, including a few SATA cables, manuals as well as driver DVDs. No frills here.

The board itself is a half-sized ATX motherboard, meaning it's a bit short height wise. The colour combination of black with red and gray accents looks quite pleasant to the eye, although we would have preferred if it used only one accent colour. A rather large "MSI. No 1 In Gaming" logo is etched in red at the top right side of the motherboard.

BOOSTING IN THE 90'S

The MSI B150M Night Elf comes with a rather nifty new proprietary technology called the DDR4 boost. What it does is to use various techniques to make sure that the processor will have the best direct

connection to the memory. This includes having a direct, shorter connection from the memory to processor, an isolated memory circuit, as well as optimised routing. This yields better memory performance. The motherboard itself supports up to four banks of DDR4 RAM, with speeds up to 2133Mhz.

The RAM slots for the DDR4 is quite close to the LGA 1151 socket. And on the right side of the socket there is another chip sitting quite close. We do think some overly large third party cooler might have some difficulties staying attached.

A LOVELY DAY

One thing that you would immediately notice with the MSI B150M Night Elf is that the first PCI-e x16 graphic slot is coloured in chrome. While functionality wise, there is nothing to gain, it looks really cool, especially with the motherboard's colour scheme. The slot is rated PCIe 3.0 x16.

Speaking of PCI-e, the motherboard



also includes two PCIe x1 slots as well as another PCIe X16 slot, although this one is only rated at 4X speed. This means that the motherboard could only use AMD's crossfire for a multi-GPU configuration.

STORAGE NEEDS

In terms of storage, the MSI B B150M Night Elf offers users up to six SATA 3.0 ports, rated at a speedy 6.0Gb/s. Sadly there is no option for anything faster, as the motherboard lacks an m.2 SSD slot. This is maybe for cost cutting purposes, but if you're looking for a 10Gb/s connection, you're out of luck.

One thing that we are concerned about is that the SATA ports are located straight up the centre of the motherboard, instead of on the side like many other models. This could hinder users if they opt to use the lower PCIe X16 slot as we can see long cards covering the SATA ports.

SPEED BOY

Interestingly while the motherboard lacks the m.2 connector, it makes up with the USB 3.1 ports. All four of them! They can be found at the rear I/O, and are of Type A rated at 10Gb/s. Two more can be connected using the onboard header. The

rest of the I/O includes one PS/2 keyboard/mouse combo, two USB 2.0 ports, one Intel Gigabit LAN, as well as a 7.1 analogue audio connector.

There is also a dual link DVI connector to use with the onboard Intel HD. We would love to have an extra graphic output or two, but usually people would be using their own discreet GPU card with a motherboard like this.

GAMING INTENSIFIES

MSI has gone out all the way to make sure that this motherboard is the best gaming motherboard that your money can afford. For one, the motherboard utilises the MSI Gaming LAN, which includes the Intel 1219 LAN chipset for optimised gaming throughput, the MSI Gaming LAN Manager to prioritise games packets, customise bandwidth, change traffic priority, as well as LAN protect, a 15KV anti-surge protection to make sure that your LAN port is well protected from a lightning strike.

Also included is the Audio Boost 3 technology. This is to make sure that you have the best audio quality there is, without even having to rely on a discreet audio card. MSI does this by using an EMI shielded HD audio chip, which is isolated from the

rest of the board for a clearer audio signal. It also uses chemi-con audio capacitors for high fidelity clear sound, as well as dual headphone amps with quality up to 600Ω.

SMALL WONDER

For such a small motherboard, the MSI B150M packs quite a punch. Intel XMP support means that you can easily overclock your RAM that is compatible. This helps since the B150 does not support CPU overclocking. Our benchmarking reveals that it's quite a good motherboard as well. It has the looks, and would certainly fit any casing that features side windows nicely.

The MSI B150M Night Elf is a well-priced motherboard that does its job well. You have all the necessities of a gaming board. The USB 3.1 should be a plus factor for anyone. If you're shopping for a motherboard that does its job and does not cost a bomb, then this is certainly for you. **PC**



SPECS

CPU: Supports 6th Gen Intel Core i3/i5/i7 processors, and Intel Pentium and Celeron processors for Socket LGA1151

CHIPSET: Intel B150

MEMORY: 4 x DIMM. Max 64GB DDR4 2133MHz ECC. Dual Channel. Supports XMP

MULTIGPU: AMD Crossfire

EXPANSION SLOTS: 1 x PCIe 3.0/2.0 x16 (x16 mode), 1 x PCIe 3.0/2.0 x16 (max at x4 mode) *1, 2 x PCIe 3.0/2.0 x1

STORAGE: 6 X SATA 3.0

USB: 4 x USB 3.1 Type A (2 at board), 2 X USB 2.0 (4 at board)



VERDICT

Affordable and does its job well. What's not to like?

din

SCORE
8.2

Slim Beast

MSI Phantom GS406QE

RM TBA

by ajith ram



MSI had been very busy in 2015 with a slew of PC gaming focused product releases, particularly in the premium laptop segment. As regular readers would have noticed, there MSI offerings provided some of the highest benchmark scores in the portable segment.

GOOD DESIGN

This month we have another gaming focussed laptop from MSI in the form of the Phantom GS406QE. At first sight, everything about the laptop reeks quality. Even the outer packaging with the MSI Gaming Series logo is designed to turn heads. This is a laptop designed to proclaim yourself as a gamer. Smaller than in many other gaming

laptops that we have seen, even the rear heat exhaust ports are equally attractive to see. MSI calls the overall design 'diamond cut' and it is immediately obvious why.

As is the favourite custom these days among laptop and smartphone manufacturers, the MSI Phantom GS406QE has a brushed metal finish. Despite boasting some serious gaming credentials, this laptop is rather thin, measuring just 345(W) x 245(D) x 22.8(H)mm.

Weighing just 1.6Kg, it is also a true 'laptop' which does not require a table for use. But keep in mind that the power supply unit is separate and it is a bit on the beefy side. That is understandable considering the unit's performance and disposition as a true gaming vehicle.

The Phantom GS406QE sports a 14-inch full HD screen. Although the bezel is not the

thinnest we have seen, the screen lid itself is extremely thin, making the total unit appear extremely small. The screen is also very bright and has excellent colour response.

PORT IN A STORM

It looks like after some initial market resistance, the Intel's Thunderbolt 3 interface is finally getting some traction. The Phantom GS406QE is one of the newer series of laptops shipping with the interface. One of the key selling points of the interface is its ability to support dual 4K outputs. It is doubtful if anyone will use this laptop for dual 4K gaming when even single 4K gaming output is beyond its capabilities.

The MSI laptop also has a full-fledged HDMI port, a USB Type C port, two regular USB 3.0 ports, mini-display port, mic-in/



headphone out, SD and LAN ports. The laptop comes with a keyboard from MSI's famous SteelSeries lineup. The twin buttons of the mouse are invisible and is built into the lower half of the large touch pad. It is a nice touch as it provides more space for the touch pad without making the laptop bigger.

POWERFUL HARDWARE

The Phantom GS406QE is powered by an Intel Core i7 6700, a quad core CPU from its Skylake family. The laptop also has a whopping 16GB of RAM and also 3GB of VRAM attached to the Nvidia GeForce 970M GPU. The system's graphics is actually a hybrid setup with the Intel 530 integrated GPU powering the desktop while the Nvidia GPU kicks in only during gaming.

As befitting its gaming pedigree, the Phantom GS406QE is equipped with Killer LAN for low latency multiplayer. Overall, the laptop's internals are beefy enough to run modern games at playable frame rates. High fidelity audio is also well catered for in the form of ESS Sabre HiFi. Its claims to fame includes the ability to enable high resolution audio with a 24bit/192kbps sampling rate that supports the Free Lossless Audio Codec (FLAC) format. To be honest, in order to fully enjoy high definition audio, you need more than laptop speakers or a pair of high quality headphones.

Storage is in the form of a fast 128GB SSD for the main Windows 10 OS and a larger regular hard drive for the applications and data. The speedy SSD allows you to boot Windows in under a minute – a truly welcome feature.

THE SOFTWARE DIFFERENCE

Just like Razer, MSI seems to be very keen to differentiate itself via their proprietary software suite which comes with the laptop. The key to this attempt is the MSI Dragon Gaming Center software suite. It ties together all the disparate requirements of the avid gamer including system information, different performance modes, LAN, audio and graphics settings. This tool also allows you to setup instant launch shortcut keys for your favourite games.

The MSI's Dragon Gaming Center design must be rather infectious. It reminds us a lot about AMD's recently launched Radeon Software Crimson suite.

In a nice touch, MSI also includes xSplit Gamecaster for free, allowing you to stream your games to Twitch or YouTube. Along with the Dragon Gaming Center, the manufacturer includes the System Control Manager tool which allows you to tweak brightness, WiFi and Bluetooth settings via a single interface. The System Control Manager also controls the exotic sounding

Nahimic audio tool which allows you to setup the correct mic levels and record HD audio during streaming sessions.

FINAL THOUGHTS

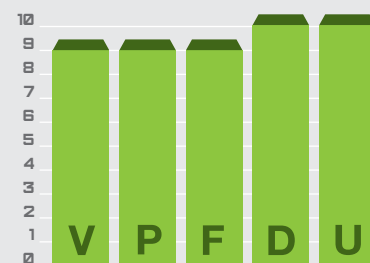
Overall, there is nothing to complain about the Phantom GS406QE. It is top notch in all regards and our testing proved it. In the Unigine Heaven and Unigine Valley benchmarks, it actually managed to beat some of MSI's own desktop replacement and gaming PCs from last year. A truly impressive achievement for a laptop in such a small form factor.

It is also not very noisy. Even under extreme performance settings, the Phantom GS406QE does not get unbearably loud. You can certainly hear the fan if you turn down the speaker volume, but nothing that makes headphones mandatory. This is quite an achievement for such a sleek high performance laptop.

The only negative side is battery life. At its full performance mode, the battery might last a couple of hours. We recommend leaving it plugged in whenever possible during gaming sessions. **PC**

SPECS

PROCESSOR: Intel Skylake i7-6700
GRAPHICS: Nvidia GTX 970M
MEMORY: 16GB
STORAGE: 256GB SSD
DISPLAY: Full HD matte panel
OS: Windows 10 Home



VERDICT

Slim and powerful. Two very attractive combinations for an ardent gamer.

ajith ram

SCORE
9.4



Build What YOU Want

Cooler Master Mastercase 5

RM TBA

by din



Cooler Master is known to produce a lot of products, coolers (as their name implies), power supplies as well as PC casing. They have made quite a few famous PC casings throughout the years, namely the HAF series. Their casings are also known to be well designed, robust and quite cheap to procure.

One problem with PC casing is that you usually are stuck with what you get, and you can't change it much. While

Cooler Master did change that a bit with the Stacker previously, they still wanted something that could fit what the user can customise. Hence they came out with the Cooler Master Mastercase 5, a totally modular PC casing. You heard that right folks. Cooler Master has just released a Lego like casing for the PC.

With a tagline of "Make it Yours" adorning the side, the Cooler Master Mastercase 5 comes in a large purplish black box, which kind of blends in with the

image of the casing that's inside. Inside the large foam protection, you will find the casing itself as well as a few mountings, screws and brackets. Thankfully, Cooler Master is kind enough to pack all of these extra bits in its own box, complete with its own compartment.

MINIMALIST DESIGN

The casing itself could be described as minimalistic. It has no exaggerated curves or lines, just a smooth, freeform shape that



blends well into each other. Buttons that are flush with the surface and it has a matte finish. If people told me beforehand that someone could make a minimalist casing, I would have scoffed in their face, but Cooler Master has done it, and it's bloody brilliant.

In term of size, the Cooler Master Mastercase 5 is suitable for ATX sized motherboards down to a mini-ITX. It's quite high and hefty with a dimension of 235 x 512 x 548mm (W x H x D). We are surprised to see that there are only two USB 3.0 port on the front panel, as usually casing manufacturers would also include two USB 2.0 as well alongside. Two easy to grip handles are built in to the casing, making moving easy.

LOTS OF BAYS

Inside, you will be getting two 3.5-inch bays, four 2.5-inch bays and two 5.25-inch ones. All of these can be added or expanded with additional ones later. For easy cabling, there

is a 0.75-inch gap behind the motherboard plate. Cooler Master has included two 140mm fans, one on the front and one on the rear, and you can install four more 120mm or 140mm fans.

The top is quite large enough to install a two long slot radiators. The casing accepts 300mm long GPUs by default, but if you have larger ones, you can take out the 3.5" bay and lengthen it to 412mm.

GOOD DESIGN

How is the casing in action? Well we love it. We can see why Cooler Master wants to make a modular casing as there is a lot of ways that you can store your hardware in this. We can put our HDD on the normal place, beside the motherboard or we could also place it below near the PSU.

Have a lot of SSDs? Add on more 2.5" bays. Want to put your water cooling radiator on the front of the casing instead

of the top? Sure, take out the 3.5" bays. The combination is limitless and the end product is up to you. All of the routing holes have soft rubber lining them up, which means cables going through won't be worn out by rubbing against the aluminium casing.

You will not always find a casing that can be changed and modified to your needs. Spacious, ergonomic and above all, modular, the Cooler Master Mastercase 5 might just be the ultimate PC casing.^{PC}



VERDICT

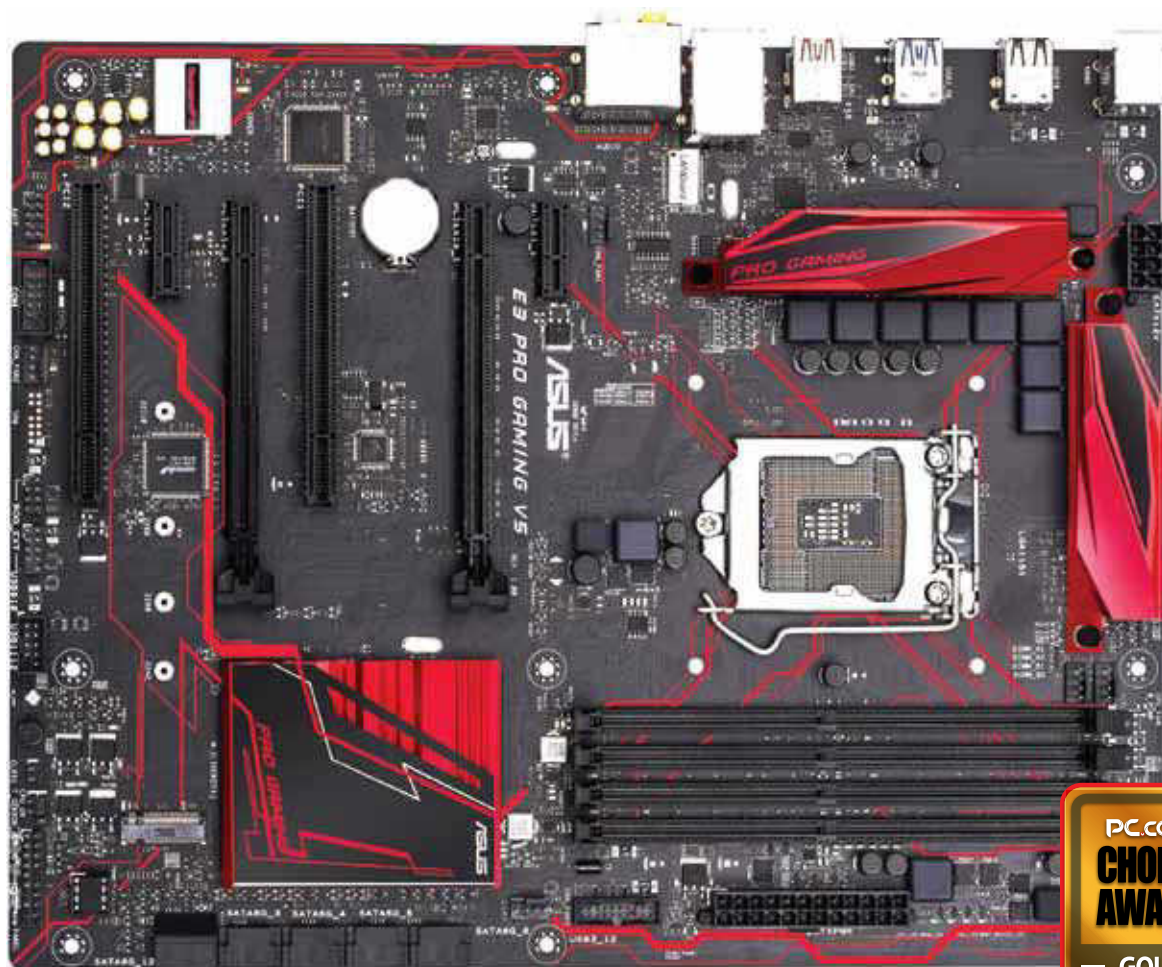
A PC case to rule them all

din

SCORE
9.2

Char's Counterattack

Asus E3 Pro Gaming V5 RM TBA by din



Have you ever thought to yourself “gee, I wish I could stick a server processor into my gaming PC and see how it goes”. No? Well now you can. Introducing ASUS’s E3 Pro Gaming V5 motherboard. A gaming motherboard that lets you take an Intel Xeon processor and use it for your gaming machine. How does a Xeon processor compare? Well let’s find out.

CHIP SET AND GO

How does one stick a server, aka a workstation processor into a desktop motherboard? Asus is using the Intel C232 chipset. This chipset not only supports Xeon E3-1200 v5 processors,

but they also support the 6th Generation Intel Core processors, aka the Skylake line of processors.

There is some give and take in this situation though. Unlike the high end Z1xx Intel chipset, you won’t get vPro nor Rapid Storage, and you are limited to eight PCI-e 3.0 lanes. Also you won’t get the ECC (Error correcting code) RAM support that you would get on a workstation, but you would hardly miss that to be honest.

SIEG XEON!

Why would anyone use a Xeon processor in the first place? Well some Xeon processors are comparable and or much cheaper than a similar spec Intel Core Skylake processors.

You would be missing some functions such as unlocked multipliers, but in some cases the price is worth it, especially if you can find some cheap stocks online.

THREE TIMES FASTER

The Asus E3 Pro Gaming V5 comes in a normal two-tiered, no frills, cost efficient box. The first tier contains the motherboard itself, safely enclosed in an anti-static bag, while the bottom contains some extra stuff like the rear I/O plate, manuals, driver DVD and some SATA cables.

I have only one word for the motherboard itself. Awesome. While as usual Asus decided to stick with a black motherboard with red accents, it’s how they used the



red accents to follow some wiring lines that makes the motherboard look futuristic and cool. I love how the lines seems to erupt from the CPU socket in the middle. Interestingly the MOSFET and Southbridge heatsink is contrasted, where they are red with black accents.

The motherboard is full sized ATX and sports a clean look. The area between the MOSFET and the CPU socket is quite large, enabling you to use a large third party cooler without much obstruction.

FOUR OF FOUR

The Asus E3 Pro Gaming V5 supports the new DDR4 memory and accepts up to four banks of each, of which they can run in dual channel mode. It supports up to a speedy DDR4 2133MHz and also supports Intel's Extreme Memory Profile or XMP in the BIOS.

Since this is a gaming motherboard, it comes with two PCIe 3.0 x16 graphic slots, although only the top supports the full x16 speed. This means that the Asus E3 Pro Gaming V5 only supports AMD's crossfire in terms of multi GPU setup. You would also get two PCIe x1 slots for added peripherals, as well as two, old school PCI slots. Yes, the obsolete PCI slots still makes an appearance here for some reason.

STORAGE WARS

In terms of storage, the Asus E3 Pro Gaming V5 gives you six high speed 6Gb/s SATA3

ports for you to play with. While for some 6Gb/s is fast enough, especially when you pair it up with a speedy SSD, some might not be content with that. So you also have a high speed 10Gb/s m.2 SSD gen 3 connector right underneath the southbridge.

To empower your gaming experience, Asus has also included the highly touted SupremeFX sound chip. Your sound chipset is shielded from electrical interferences and uses premium audio caps for excellent audio quality. The SupremeFX chip also has cool LED lights that will light up and pulse during normal as well as gaming sessions.

IN AND OUT

Something that might influence you more in getting this motherboard is that it's equipped with USB 3.1. Yes folks, the latest, 10Gbps high speed USB interface is included on this motherboard. Not only that, you will have both the A type and the C type, all situated at the rear I/O. Other I/O are separate and include mouse and keyboard PS/2 connectors, two USB 2.0, four USB 3.0, an Intel Gigabit LAN with LANGuard technology, and a 7.1 analogue audio ports.

Note that this motherboard does not have any graphic output. This is due to the fact that the Xeon processor does not come with an internal Intel HD GPU. So you need to rely on a discreet GPU for this motherboard.

TESTING TIMES

We would have loved to test the Asus E3 Pro Gaming V5 with an Intel Xeon processor, but sadly we don't have one lying around at the moment. So we had to make do with an Intel i7 6700k instead. And the motherboard performed admirably well, as expected of a gaming-centric motherboard.

Using PCMark, we benchmarked the motherboard, and managed to get some really good scores. Our only gripe is the lack of GPU output, due to the Xeon not having any internal Intel HD graphics. But if you are buying a Skylake CPU, you would likely have a discrete GPU anyway.

The Asus E3 Pro Gaming V5 is a good and robust gaming motherboard, albeit with a specific target market. If you are looking to buy a Xeon processor for your gaming needs, well, this is the only board for you right now. **PC**

SPECS

CPU: Intel® Socket 1151 for Xeon® E3-1200 v5 and 6th generation Core™, Pentium® and Celeron® Processors

CHIPSET: Intel C232

MEMORY: 4 x DIMM. Max 64GB DDR4 2133MHz Non ECC. Dual Channel. Supports XMP

MULTIGPU: AMD Crossfire

EXPANSION SLOTS: 1 x PCIe 3.0/2.0 x16 (x16 mode), 1 x PCIe 3.0/2.0 x16 (max at x4 mode) *1 2 x PCIe 3.0/2.0 x1, 2 x PCI

STORAGE: 6 X SATA 3.0, 1 x m.2 Socket 3.

USB: 1 x USB 3.1 Type A, 1 X USB 3.1 Type C, 6 X USB 3.0 (2 at board), 6 X USB 2.0 (4 at board)



VERDICT

A surprisingly good motherboard that shows even a Xeon can be a gaming processor.

SCORE
8.4

din



For the Action Enthusiasts

Garmin VIRB X **RM1,399**

by daryl tan

Ever since GoPro came along, everyone has suddenly gotten an interest in these so-called 'action cameras' – tough, durable cameras meant to take a beating as you undertake all manner of physical activities. The VIRB X is Garmin's latest take on the fast-growing category, offering a product that is a far cry from its previous offering, the VIRB Elite. Has Garmin done enough to finally crack the market?

DURABLE EXCELLENCE

The VIRB X is a far cry from its predecessor, with a much smaller body that is more akin to a GoPro. Unfortunately, getting to that size came at a cost: the VIRB X does not come with a preview display screen, which is quite a bummer as since there isn't even a physical viewfinder, it can be quite a challenge to properly frame your shots and viewing pictures and videos is no longer possible on the device. Though Garmin does provide an app that can act as a viewfinder, it's rather cumbersome, and the connection is pretty iffy.

The design of the VIRB X though, is nothing to scoff at. Made out of a very tough plastic shell, the VIRB X feels like it'll survive even the harshest environment. Even more amazing is unlike a standard GoPro, the

device is waterproof out of the box, up to 50m! This means you don't have to lug about a waterproof casing with you, which is always appreciated when packing for trips.

At the bottom of the device you'll find a Universal Mount which is compatible with just about anything out there, though Garmin does include a mount that can be attached to a given surface using a powerful adhesive. The front cover can be opened to reveal the battery housing and the microSD card slot. There's even a fog tray where you can insert a moist absorbing material to ensure there isn't any condensation build up when you're out recording epic adventures in cold climates or under the sea.

EXCELLENT IMAGES

Garmin may not be the first name you think of when it comes to action cameras, but its video and picture quality is definitely worthy to be shared; recording at 1080p and 30 fps, it isn't quite as buttery as the 60fps that the VIRB XE is capable of, but the quality is still really impressive.

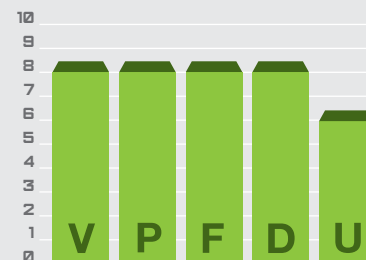
Colors were vibrant and the picture is full of detail. One downside though is that the VIRB X doesn't come with electronic image stabilisation, resulting in some shaky video footage. Still images turned out pretty

good, though some of pictures did turn out slightly too sharp for my taste.

The VIRB X is a truly interesting product in a world dominated by GoPros. Its removable battery is a welcome addition in an industry that has largely gone with built-in non-removable batteries and the fact that it's waterproof out of the box further heightens its appeal among travelers. Still, the fact that you need to use an app to act as a viewfinder does dampen its usability somewhat. If you're in the market for an action camera, add this into the list alongside the GoPro. You might be surprised which one you go for. **PC**

SPECS

SIZE: 77 x 40.6 x 35.8 mm
IMAGE SENSOR: 12.4 MP, 1/2.3" CMOS
FILE TYPE: .mp4
1080P HD VIDEO: 30, 25 fps
960P HD VIDEO: 30, 25 fps
720P HD VIDEO: 60, 50, 30, 25 fps
480P (SLOW MOTION): 120 fps
STILL PHOTO RESOLUTION: 12 MP and 7 MP
PHOTO BURST: 12MP at 10 fps
PHOTO TIME LAPSE: custom up to 120 second intervals
INTERNAL MIC: Yes
EXTERNAL MIC: Plug-in/Bluetooth option available



VERDICT

Durable and capable, the Garmin VIRB X is as capable an action camera as any on the market.

SCORE
7.6

ajith ram





PRINTATHON

Once upon a time, the home and small office-focussed printing industry was focussed on hyping print speeds. During those days, it was a given that printing cost per page would be very high. Then the industry transitioned to a marketing focus on print quality. Today, the focus is squarely on efficiency/cost-per-page and print quality.

For the inkjet printer Showdown this month, we also chose to focus our testing on print speeds, efficiency and print quality. All the devices in the Showdown are suitable for home use or a small office. A couple of them are full-fledged all-in-one devices with fax, copy capabilities in addition to print and scan. All the devices in our Showdown are also below RM1,000.

Read on to find out the features of each and the ultimate winner of our inkjet Showdown.



HP OfficeJet 7510

LARGE AND AFFORDABLE

INEXPENSIVE OPTION

The OfficeJet 7510 is affordable for home users and small businesses who need to produce A3 posters, brochures and other marketing materials.

At first sight, it certainly appears to be good value for money. A full-fledged multi-function device, this printer is accompanied by a scanner, copier and a fax machine. It has a 35-sheet document feeder. Connectivity comes in the form of Ethernet, USB and Wi-Fi plus support for Apple's AirPrint for iOS devices.

MISSING FEATURE

Although targeted at the professional market, it does not include an automatic duplex printing option. The only way to print on both sides is to manually turn over the printed page and start the printing again.

The 250-sheet input tray is large enough for most small businesses and it can be adjusted for different sizes from 6x4 postcards up to a full A3. There is only one input tray. So you will need to change the paper every time you need to print in a different size.

The HP printer comes with a useful touchscreen, welcome difference compared to the Epson L565. This allows you to connect the printer to your Wi-Fi network as well as set it up initially after installing the print cartridges. HP supplies four colour cartridges for the OfficeJet 7510. The cartridge trays are colour-coded, making them easy to install and remove.

SLIGHTLY BULKY

The OfficeJet 7510 is not the smallest printer we have seen. Its A3 printing capability obviously makes it bulkier than the more common A4 printers.

The bundled scanning software could have been better. The scanner driver with



“The OfficeJet 7510’s real forte is in black and white text printing.”

the Epson L565 has better features. This is rather surprising, considering the printer's target market. In our tests, we found that the more consumer-focused Pixma G3000 from Canon produced slightly better quality scans than the OfficeJet 7510. But the OfficeJet scans are still very good quality.

BASIC PRINTING FEATURES

Like the scanner driver, the printer driver is also rather basic. It has a minimalist interface and you need to spend some time there to find the best printing settings.

Overall print quality varies between acceptable to good. The OfficeJet 7510's real forte is in black and white text printing. Even under magnification, the letters looked sharp with very little smudging. But even when using glossy HP photo paper, colour reproduction was not quite as good. Again, compared to the Canon G3000, the photos produced by the OfficeJet 7510 looked slightly dull.

The OfficeJet 7510 is a really fast printer. This is particularly true in its default print mode. So it is ideal for an office with a heavy print load. Its low running costs also make it more attractive.



HP DeskJet Advantage 3635

SMALL AND BEAUTIFUL

DESIGN

The HP DeskJet Ink Advantage 3635 is made out of matte polycarbonate body with lots of white and a nice blue trim. The scanner, predictably, can be found on top of the printer. Next to it is the status display that shows the ink levels and some useful information about the printing and scanning operations.

BUILT-IN PRESETS

There are also nine buttons for the operation of the printer – Cancel, Resume, Wireless, Information, Wi-Fi Direct, HP ePrint, Copy Colour, Copy Black, and Power. The paper

feed tray is accessed by sliding it out and can be kept away when not in use. The same applies to the paper tray at the front.

Opening the front bay gives access to the cartridge holder. A useful label inside clearly indicates which HP ink cartridges are compatible with the DeskJet Ink Advantage 3635. The DC-in and USB ports are located at the back of the printer.

WI-FI DIRECTLY USEFUL

The DeskJet Ink Advantage 3635 is a multi-purpose home and office printer. It can print, scan, copy and has almost everything you need in dealing with paperwork in

such an environment. The built-in Wi-Fi allows you to print without connecting the USB cable. Unlike its larger sibling, the Officejet 7510, this printer does not have a fax function and cannot print A3 sizes. Of course, it is also much cheaper. One of the useful features of the DeskJet 3635 is Wi-Fi Direct printing feature. To use this, you do not even require a PC. Any compatible Android device like a smartphone is sufficient.

But keep in mind that you will need to connect the printer at least once initially to a PC using the USB if you plan to print from a PC. After the device installation, the cable can be removed and all future PC printing can be done wirelessly. If you print from a PC, a much wider range of printing options will also be available. You can go borderless, set the type of paper to use or choose presets.

Using a photo editing application like Adobe Photoshop Elements, you can also scan documents and save them as PDFs or JPEGs. You can also do photocopy with just one click. The HP DeskJet Ink Advantage 3635 has discrete buttons for direct copy, one for colour and another for grayscale. It also has the ability to print while scanning.

ACCEPTABLE QUALITY

In its default printing mode, the DeskJet Ink Advantage 3635 produces text and images which can be described as good for home or small office use. It is also not the fastest inkjet printer we have seen. If you intend to print photos for an album, we absolutely recommend the highest quality photo paper you can find. But keep in mind that printing speed will go down as the quality setting is increased.

“the DeskJet Ink Advantage 3635 produces text and images which can be described as good for home or small office use”





Canon Pixma G3000

SMOOTH OPERATOR

INK BOTTLE DESIGN

With the recent launch of the Pixma G series printers, Canon has become the latest printer manufacturer to offer inkjet printers with refillable ink tanks. To be clear, they are not the first manufacturer to offer refillable tanks. HP and Epson already do so.

The new G series consists of three models, the G1000, G2000, and G3000. Similar to Epson's ink tank printers, Canon's G series printers are designed to offer high volume printing with extremely low running costs.

For example, the black ink bottle is able to print up to 6,000 pages in black and the combined cyan, magenta, and yellow ink bottles can print 7,000 pages in colour. The ink bottles also use screw-down caps to prevent ink leakages, while ensuring easy ink flow during refilling.

It would be more appropriate to call Canon's ink bottle design 'spill resistant' rather than completely spill free. During our test, a few drops did leak out, but nothing much to be concerned about.

SMALLER FOOTPRINT

Another feature that sets the Canon G series printers apart from Epson and HP's models is that their ink tanks are integrated within the printer body, thus reducing the space needed to accommodate the printer. This could be a double-edged sword as you need to be a bit more careful while refilling.

The G3000 also has a see-through design near the ink bottles. So users can easily monitor their ink levels on the front panel without opening up the printer.

The printer generates 4R borderless photos and also A4-size photos. The G3000 also works with the new Canon Print Inkjet/Selphy app available on iOS and Android. This replaces the old Pixma Printing Solutions, allowing



“the Canon G3000 should definitely be considered by any home or small office buyer”

users to print, scan, and access files on the printer via their phones or tablets. Users can also upload their files to cloud-based portals such as Facebook, Dropbox, and Google Drive via the Pixma Cloud Link app.

PERFORMANCE

The Canon G3000 is not the fastest printer in our Showdown. But the final print quality

is nothing to be scoffed at. It is particularly good at printing deep blacks and myriad shades of grey. Text quality is also excellent. Colour reproduction though was not quite on par with the Epson L565.

With its excellent ink efficiency and high printing quality, the Canon G3000 should definitely be considered by any home or small office buyer.



Epson EcoTank L565

QUALITY TRIUMPHS

GOOD DESIGN

The L565 is a compact printer, the smallest in our Showdown this month. The unit measures 484x226x377mm and weighs 6.2KG. Compared to the svelte Epson L565, the other all-in-one printer in our Showdown, the HP Officejet 7510 looks rather bulky. Of course, the Officejet 7510 is the only one capable of A3 printing.

The L565 has a mixture of matte and glossy black finishes for its structure. Its ink tank is attached to the outside of the main printer's body. This makes it very easy to fill the tanks – there is no need to open the printer itself. It also makes the printer shape slightly odd as the ink tank juts out.

The L565 holds 100 sheets of paper in its top feeding tray and includes both a

flatbed and an automatic document feeder for scanning and faxing.

Alongside the number pad and scan controls, the Epson L565 includes a small 2.2-inch monochrome LCD display. There are three buttons in orange (cancel), grey (black print), and blue (colour print) on the front panel.

The unit does not offer automatic duplexing. So you will need to manually turn over the paper sheet. As with other multifunction printers, we recommend using the flatbed scanner for the best scan quality.

“the images printed by the L565 were a breed apart due to higher contrast and much better colour variations”

CONNECTIVITY & INSTALLATION

In addition to the standard wired USB connectivity option, you can also connect via Wi-Fi. The Epson drivers are a breeze to install. The installation wizard is very user friendly. But the same cannot be said of the printer ink bottles. Just like the Canon Pixma G3000, the ink bottles are more spill-resistant than completely spill-free. You just need to be very careful when refilling.

PERFORMANCE

There is no question about it. Of all the printers in our Showdown this month, the Epson EcoTank L565 stands above the rest. While it was easy to get confused by the similar images produced by the other printers, the images printed by the L565 were a breed apart due to higher contrast and much better colour variations. The black and white images were also better with a greater tonal variation between the brighter and darker areas.

The only negative side to the L565's printing capability is its slower printing speed at the highest quality setting. The Epson device was the slowest in our Showdown. But it is small price to pay for such exceptional print quality.





SHOWDOWN



HP OFFICEJET 7510

PRINT SPEED BLACK:
Up to 15 ppm

PRINT SPEED COLOUR:
Up to 8 ppm

DUTY CYCLE (MONTHLY, A4):
Up to 12,000 pages

PRINT TECHNOLOGY:
HP Thermal Inkjet

COLOUR RESOLUTION:
Up to 4800 x 1200 optimised dpi colour

BLACK RESOLUTION:
Up to 600 x 1200 dpi

DISPLAY:
6.73 cm (2.65") LCD (colour) with IR touchscreen function

PROCESSOR SPEED:
500MHz

NUMBER OF PRINT CARTRIDGES:
Four (black, cyan, magenta, yellow)

PRICE: RM759

SCORE **8.2**



HP DESKJET ADVANTAGE 3635

FUNCTIONS:
Print, copy, scan, wireless

PRINT SPEED BLACK:
Up to 8.5 ppm

PRINT SPEED COLOUR:
Up to 6 ppm

PRINT TECHNOLOGY:
HP Thermal Inkjet

COLOUR RESOLUTION:
Up to 4800 x 1200 optimised dpi

DISPLAY:
7 segment + icon LCD

NUMBER OF PRINT CARTRIDGES:
3

CONNECTIVITY:
Wi-Fi, USB

PRICE: RM279

SCORE **7.4**



CANON G3000

BLACK & WHITE:
6,000 pages

COLOUR:
7,000 pages

PRINTING RESOLUTION:
4800 x 1200

CONNECTIVITY:
USB Port, LAN Port, Wireless LAN

SCAN RESOLUTION:
600 x 1200 dpi

PRICE: RM735

SCORE **9.0**



EPSON L565

PRINTING METHOD:
On-demand inkjet

NOZZLE CONFIGURATION:
180 Nozzles Black, 59 Nozzles per Color

PRINTING RESOLUTION:
5,760 x 1,440 DPI

PRINTING SPEED:
9.2 Pages/min monochrome, 4.5 Pages/min colour

COLOURS:
Black, Cyan, Yellow, Magenta

OUTPUT TRAY CAPACITY:
30 Sheets

PRICE: RM925

SCORE **9.2**

CONCLUSION

As mentioned in the introduction, the world of inkjet printers has seen some dramatic changes over the past decade. In addition to print quality, maybe as a result of consumer complaints, printer manufacturers are now very conscious about cost per page.

None of the devices in our Showdown this month can be termed as particularly expensive to operate. The HP OfficeJet 7510 and the Epson L565 are true all-in-one devices with copy, fax capabilities, ideal for the small office. This makes them a bit more expensive than the HP DeskJet 3635 and the Canon Pixma G3000.

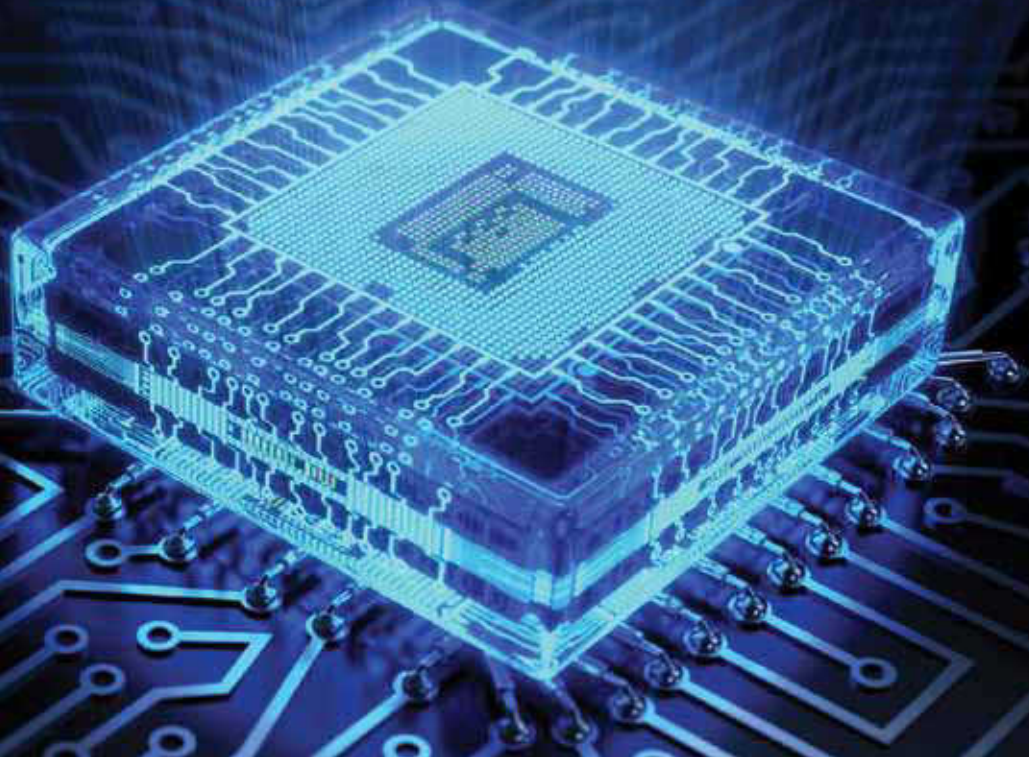
The HP OfficeJet 7510 is the only device in our Showdown capable of A3 printing. It is also the fastest. Both colour and black printing quality is very good. The second printer from HP, the DeskJet Advantage 3635 is the cheapest device in the Showdown. Although it lacks fax, copy capabilities, its print quality is more than a match for its larger sibling.

The Canon G3000 is the manufacturer's latest entry in the Pixma G range. Its single biggest selling point is its extremely low cost per page. The print and scan outputs are

also excellent. Like the HP printers, it is also capable of true borderless photo printing.

As mentioned in the review, the Epson EcoTank L565's print quality is exceptional. Although it does not have the borderless printing capability of the other devices and is the slowest in our Showdown, the quality of its output blasts it into a different league. Along with fax and copy capabilities, the Epson device also boasts extremely low cost per page.

This makes the **Epson EcoTank L565** a deserved winner of this month's Showdown. **PC**



FUTURESHOCK

ARM vs INTEL

by ajith ram

Once upon a time (1998), in a land far far away (USA), there was a server and workstation CPU manufacturer who was king of all he surveyed. His CPU was much faster than anything else available at that time and he was happy.

Then, much to his shock, a pesky little upstart from the world of consumer PCs launched their first workstation and server CPU. The king scoffed at the upstart company and derided their new server

CPU. Today, that sneering king is no more, acquired by a PC manufacturer, who is also extinct.

And the upstart manufacturer from the world of consumer PCs is now king of all he surveys.

The king in this technology parable is DEC or Digital Equipment Corporation. The king's CPU was the Alpha. And the upstart is of course Intel. It could also be the story of Sun Microsystem's UltraSPARC or

IBM's Power CPU architectures, both now faded giants.

Is history about to repeat itself? Is there a futureshock in store for Intel?

Today, Intel remains the unchallenged king in the desktop PC, workstation and server space. In the server space, it has over 90 percent marketshare.

When the Xeon launched in 1998, as mentioned before, it was not the fastest in

computing. Both the Alpha and UltraSPARC were faster and also of course, much more expensive. They also had a dedicated customer base in large enterprises and film studios who required the fastest CPUs available. Even Microsoft, a long-time Intel ally, had a 32-bit version of Windows available for workstations and servers in the form of Windows NT that supported the DEC Alpha processor.

We find history repeating itself today with the arrival of ARM architecture CPUs in the low-cost and low power server space. During the early years, compared to the DEC Alpha and UltraSPARC, Intel's Xeon was marketed as 'good enough' rather than the 'fastest' on the planet.

The same applies to ARM CPUs today. They do not even come close to the performance of the highest-end Intel Xeon CPUs. Just as in 1998 with the Xeon, many enterprise customers are starting to find out that

lower cost ARM CPUs might just be 'good enough' for their needs.

This portends yet another battle of the CPU architectures.

At the moment, at least in terms of revenue, ARM is not a threat to Intel. Unlike Intel, ARM makes it money by licensing its CPU designs to other manufacturers such as Samsung, Qualcomm and Texas Instruments. Most of the CPUs from these manufacturers ship on mobile devices, a market where Intel has almost no presence. Similarly, ARM is almost non-existent on the desktop PC and Windows-based server markets – at least for now. The ARM version of Windows on tablets has proved to be a dismal affair in the past few years.

Despite its best efforts, at least so far, Intel has made very little headway in getting its x86 Atom CPUs into mobile devices. It could be argued that the number of Intel-

based mobile devices are increasing every year. But they still remain a few drops in the mobile ocean. Barring a few devices like the Lenovo Yoga Tab 3 Pro (see review), it is not in great supply.

If internet rumours are to be believed, Intel is practically giving away its mobile Atom and Cortex M CPUs just to gain market share. A very uneasy situation for the king of computing.

Another problem for Intel is that it is not in a direct competition with ARM. Unlike its battles with AMD, this time Intel is up against a host well-heeled ARM licensees including Apple, Samsung, Qualcomm and Texas Instruments. All of these companies are sitting on tens of billions of dollars and also have the technical muscle to design excellent cutting-edge CPUs.

From Intel's perspective, this is a battle to maintain its gross profit margins. According ►





ARM

HISTORY OF ARM ARCHITECTURE

1985 Acorn Computer Group develops the world's first commercial RISC processor.

1987 Acorn's ARM processor debuts as the first RISC processor for low-cost PCs.



1990 Advanced RISC Machines (ARM) spins out of Acorn and Collaboration efforts with Apple Computer's to create a new charter for a new microprocessor standard. VLSI Technology becomes an investor and the first licensee.

1991 ARM introduces its first embeddable RISC core, the ARM6.

1993 Cirrus Logic and Texas Instruments licenses ARM technology. ARM introduces the ARM7 core.

1995 ARM announces the Thumb architecture extension, which gives 32-bit RISC performance at 16-bit system cost.

1996 ARM and Microsoft work together to extend Windows CE to the ARM architecture.

1998 HP, IBM, Matsushita, Seiko Epson and Qualcomm license ARM technology.



2001 ARM's share of the 32-bit embedded RISC microprocessor market grows to 76.8 per cent.

2007 ARM Cortex-M1 processor launched – the first ARM processor designed specifically for implementation on FPGAs.

2008 ARM announces 10 billionth processor shipment.

2011 Cortex-A7 processor launches with Big.LITTLE processing, linking Cortex-A15 and Cortex-A7 processors.



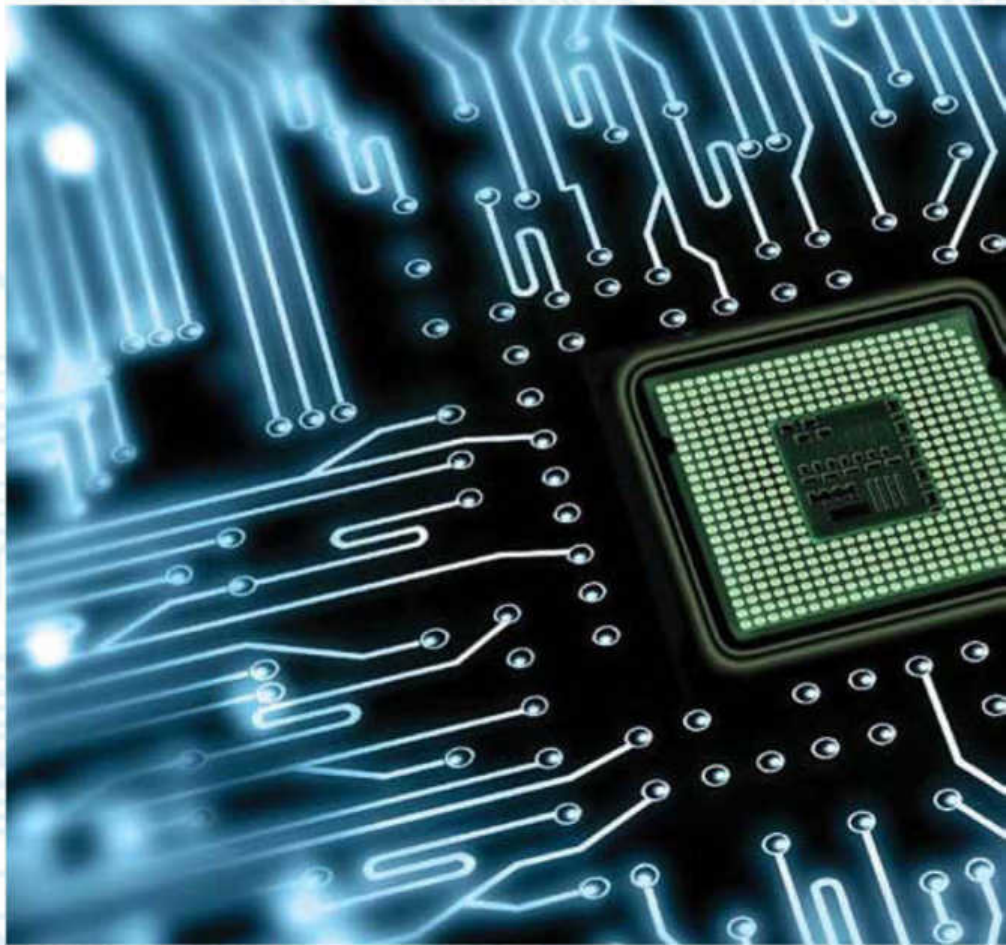
2015 ARM launches ARMv8-M architecture.

◀ to the data available, Intel's gross margin during 2015 was just over 60 percent. The bulk of this came from CPU shipments ranging from the entry-level Atom to the high-end Xeon. To put this in perspective, Intel's direct x86 competitor, AMD had a gross profit margin of less than 25 percent.

The advent of the ARM CPU manufacturers poses a clear and present danger to Intel's massive gross profit margin. A new entrant in the server CPU space will be quite content with much lower gross profit margins, particularly if it means getting their foot into the enterprise door.

Right at the forefront of this ARM licensees versus Intel battle is Qualcomm, one of the biggest companies in the tech industry. Recently, the company showed off a 24-core prototype ARM CPU running Linux, Apache Web server, MySQL and PHP along with OpenStack's cloud software – all popular in the enterprise space.

Even today, when Qualcomm is non-existent in the server and workstation arenas, it is very obvious that the company has the capability to take on Intel. For example, Qualcomm's high-end mobile SoC, the Snapdragon 810 (based on the ARM architecture) is more than a match for Intel's Atom X 5-Z8500 CPU. There is no reason why this would not be replicated in the server space as well.

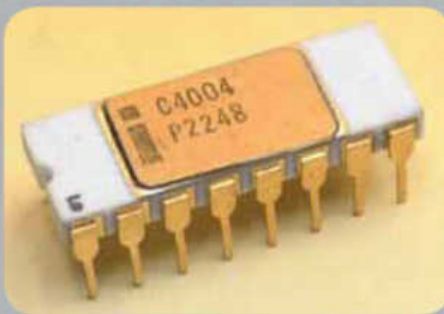


HISTORY OF INTEL X86 ARCHITECTURE



1968 Gordon Moore, Robert Noyce and Andy Grove found Intel Corp. to pursue the business of "INTEgrated ELEctronics."

1971 Intel launches the world's first microprocessor, the 4-bit 4004, designed by Federico Faggin. The 2,000-transistor chip is made for a Japanese calculator, but a farsighted Intel ad calls it "a microprogrammable computer on a chip."

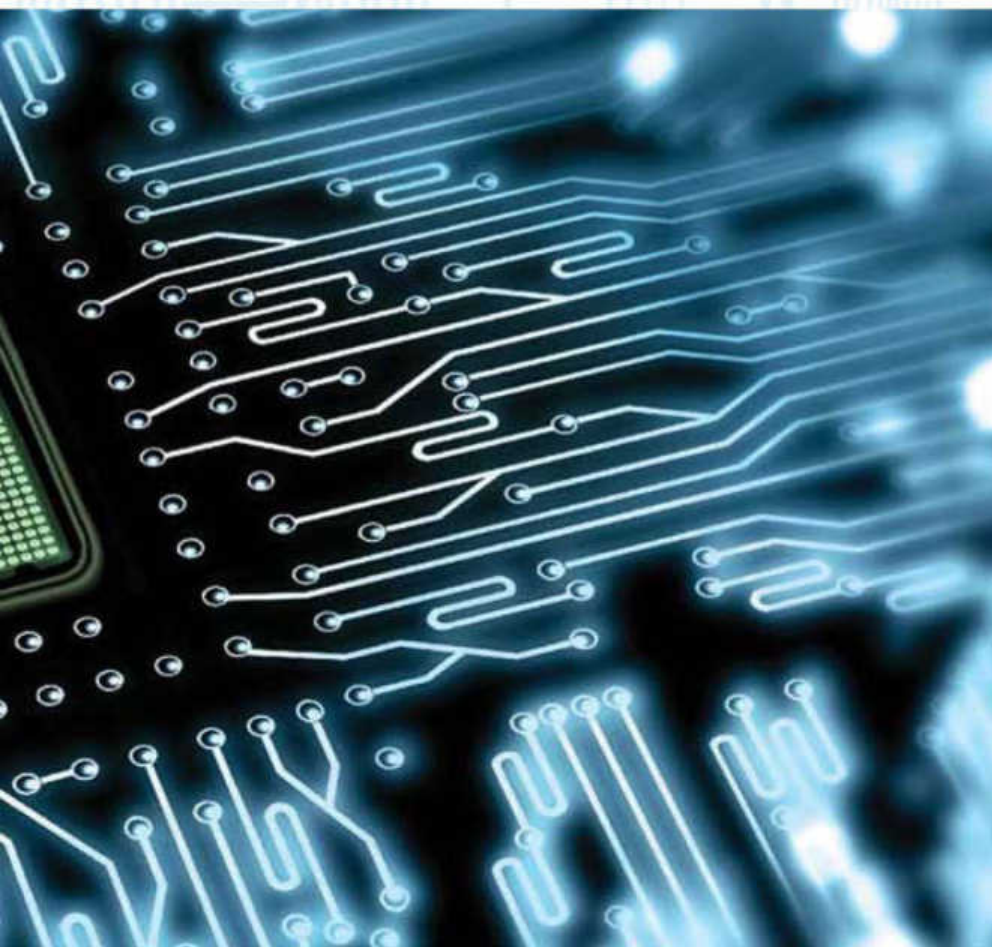


1972 Intel announces the 8-bit 8008 processor. Teenagers Bill Gates and Paul Allen try to develop a programming language for the chip, but it is not powerful enough.

1974 Intel introduces the 8-bit 8080 processor, with 4,500 transistors and 10 times the performance of its predecessor.

1975 The 8080 chip finds its first PC application in the Altair 8800, launching the PC revolution. Gates and Allen succeed in developing the Altair Basic language, which will later become Microsoft Basic for the 8080.

1976 The x86 architecture suffers a setback when Steve Jobs and Steve Wozniak introduce the Apple II computer using the 8-bit 6502 processor from MOS Technology. PC



To make matters worse for Intel, Qualcomm is far from the only well-funded company moving into the ARM server processor space. The others include lesser known names such as Cavium, Broadcom, and AppliedMicro. To complicate matters, Intel's only x86 competitor, AMD, also recently entered the fray with its ARM-based Opteron A1100 SoC targeted at datacenters.

Of course, the enterprise segment is not just about powerful hardware. According to data gathered by the Electronic System Technologies Conference, the cost of server hardware is 57% of the total investment. This does not account for the cost of the tools and software that actually run on the server.

Companies like Facebook and Google, who produce their own software and build their own datacenters can afford to retool their own software to run on ARM-based CPUs. Moving server architectures is still a major endeavour for these companies, but they have the financial and technological muscle to do it. If it means much cheaper server hardware in the future (without expensive Intel CPUs), they also have a strong financial incentive.

Are other software companies like Microsoft and VMWare going to beat a path to the door of ARM licensees? The picture is not

maker Commodore also uses the Intel competitor's chip.

1976 Intel introduces the 16-bit 8086 microprocessor. It will become an industry standard.

1979 Intel introduces a lower-cost version of the 8086, the 8088, with an 8-bit bus.

1980 Intel introduces the 8087 math co-processor.

1981 IBM picks the Intel 8088 to power its PC. An Intel executive would later call it "the biggest win ever for Intel."

1982 IBM signs Advanced Micro Devices (AMD) as second source to Intel for 8086 and 8088 microprocessors.

1982 Intel introduces the 16-bit 80286

processor with 134,000 transistors.

1984 IBM develops its second generation PC, the 80286-based PC-AT. The PC-AT running MS-DOS will become the de facto PC standard for almost 10 years.

1985 Intel exits the dynamic RAM business to focus on microprocessors, and it brings out the 80386 processor, a 32-bit chip with 275,000 transistors and the ability to run multiple programs at once.

1986 Compaq Computer leapfrogs IBM with the introduction of an 80386-based PC.

1989 The 80486 is launched, with 12 million transistors and a built-in math co-processor. Intel predicts the development of multicore processor

chips sometime after 2000.

1990 Compaq introduces the industry's first PC servers, running the 80486.

1993 The 3.1 million transistor, 66-MHz Pentium processor with superscalar technology is introduced.



HISTORY OF INTEL X86 ARCHITECTURE

- ◀ **1995** The Pentium Pro debuts with radical new features that allow instructions to be anticipated and executed out of order. That, plus an extremely fast on-chip cache and dual independent buses, enable big performance gains in some applications.
- 1997** Intel launches its 64-bit Epic processor technology. It also introduces the MMX Pentium for digital signal processor applications, including graphics, audio and voice processing.
- 2000** The Pentium 4 debuts with 42 million transistors.
- 2003** AMD introduces the x86-64, a 64-bit superset of the x86 instruction set.
- 2004** AMD demonstrates an x86 dual-core processor chip.
- 2005** Intel ships its first dual-core processor chip.



◀ quite as clear. The overwhelming majority of server and workstation software is x86-based. The need for stability could make the adoption of ARM CPUs slower inside these companies.

However, just as what happened during the DEC Alpha era, as companies get used to the idea of powerful ARM CPUs in the workstation and server segments, they might start migrating their key applications to the ARM architecture.

Is it possible to have a future where ARM-based CPUs dominate the workstation and server markets? It is definitely possible. But knowing Intel, it is not going to be an easy ride for the competitors.

Intel's attitude to competition is typified by one of its former CEOs, Andrew S. Grove. His autobiography is titled "Only the Paranoid Survive: How to Exploit the Crisis Points That Challenge Every Company." Unlike Intel's former competitors, DEC and Sun Microsystems, this paranoia is built into Intel's DNA. It is not a company that sits on its laurels.

History has shown that it is a company that has a good track record of playing 'dirty'. In 2009, the European Union levied a record €1.06 billion (US \$1.56 billion) fine against Intel for abusing its dominant position in the CPU market. The EU investigation was kicked off by AMD's complaint that German retailer Media Markt signed exclusivity agreements with Intel in exchange for undisclosed payments.

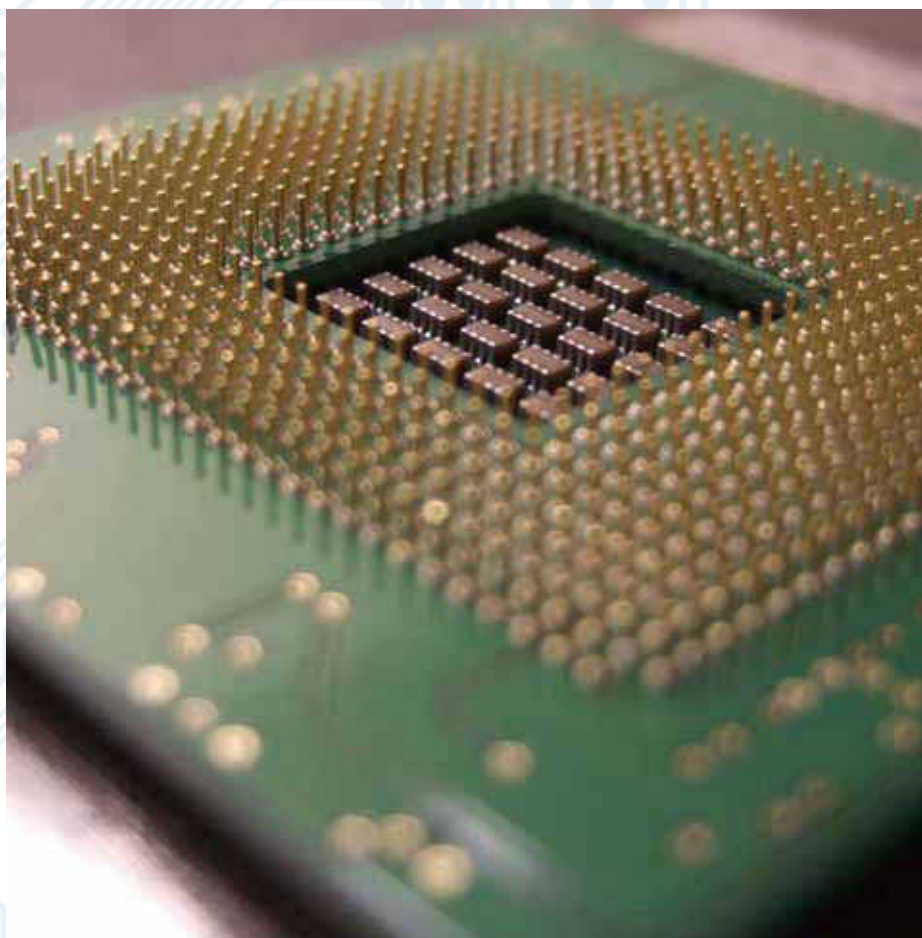
If internet and industry rumours are to be believed, Intel made similar payments to Adobe in the 1990's for not porting Photoshop to DEC Alpha. This ensured that all the freelance digital content

creators and Hollywood special effects studios slowly migrated to Intel PCs.

Intel continues to knock hard at the doors of the mobile device manufacturers. Just like its ARM counterparts, Intel's Core M and Atom line of CPUs continue to improve every year. Anticipating the impending Internet of Things (IoT) revolution, the company recently launched an ultra-low

power CPU series named the Quark. Intel also has the advantage of almost US \$100 billion in its bank account.

It looks certain that there is a clash of the titans in the offing in the near future. It is perfectly possible that the PC market will see a flood of high-end ARM-based systems. Heralding greater competition, that era would also be a good day for the consumer. PC



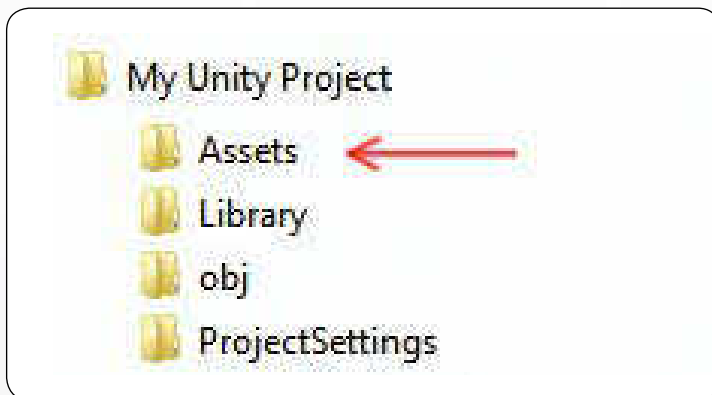


Unity 3D TUTORIAL 1 >>>

IMPORTING ASSETS

Assets created outside of Unity must be brought in to Unity by having the file either saved directly into the “Assets” folder of your project, or copied into that folder. For many common formats, you can save your source file directly into your project’s Assets folder and Unity will be able to read it. Unity will notice when you save new changes to the file and will re-import as necessary.

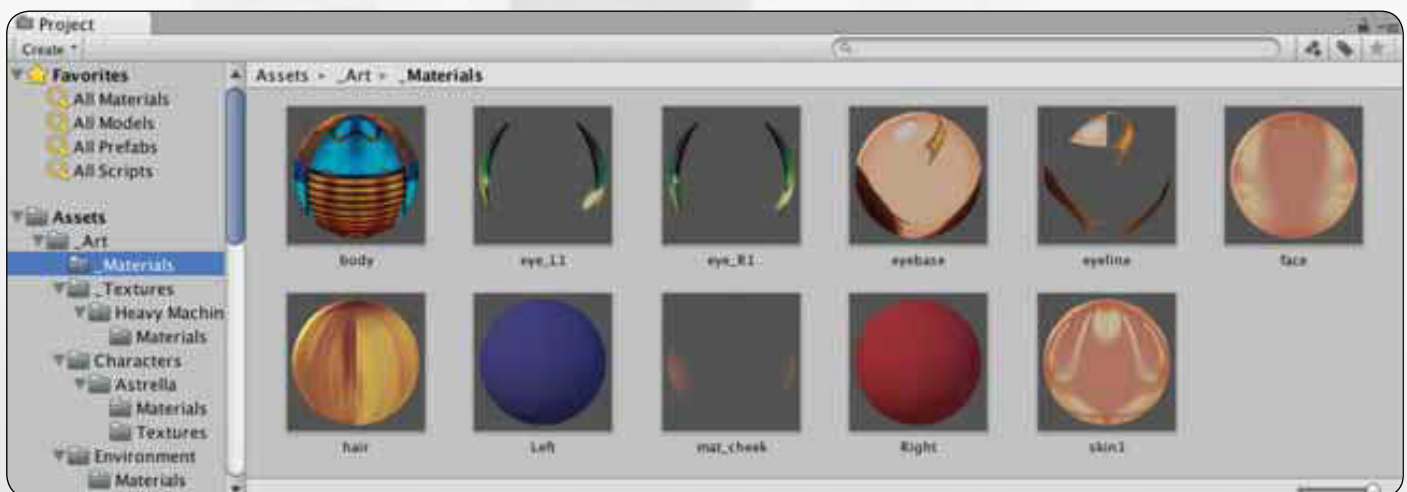
When you create a Unity Project, you are creating a folder - named after your project - which contains the following subfolders:



▲ The Assets folder is where you should save or copy files that you want to use in your project.

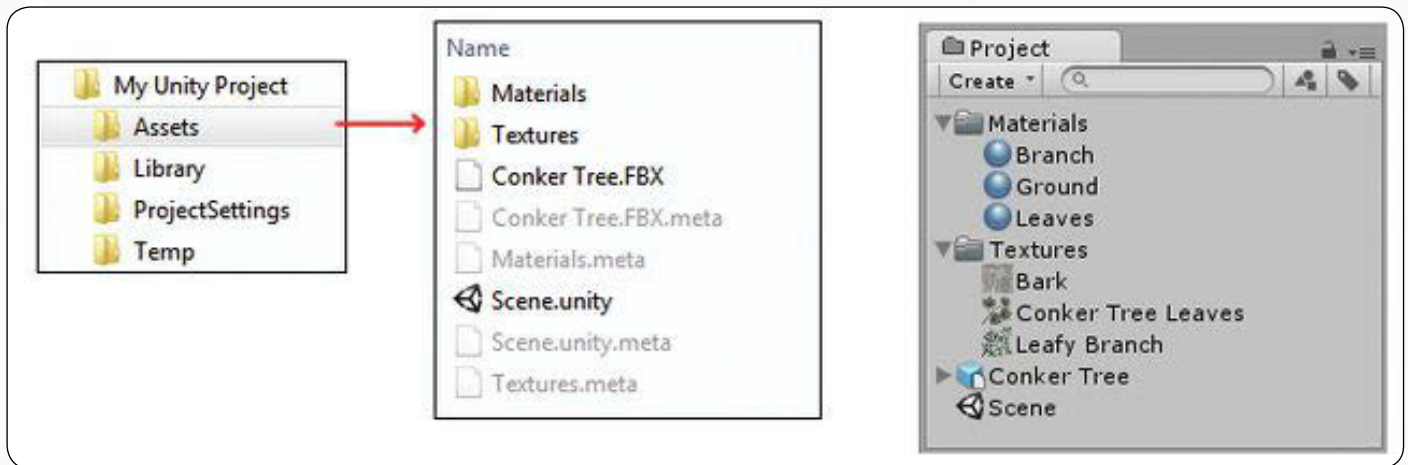
The contents of the Project Window in Unity shows the items in your Assets folder. So if you save or copy a file to your Assets folder, it will be imported and become visible in your Project Window.

Unity will automatically detect files as they are added to Assets folder, or if they are modified. When you put any asset into your Assets folder, you will see the asset appear in your Project View.



▲ If you drag a file into Unity’s Project Window from your computer (eg, from the Finder on Mac, or from Explorer on Windows), it will be copied into your Assets folder, and will appear in the Project window.

The items you see in your Project window represent (in most cases) actual files on your computer, and if you delete them within Unity, you are deleting them from your computer too.



▲ The above image shows an example of a few file and folders inside the Assets folder of a Unity project. You can create as many folders as you like and use them to organise your Assets.

You'll notice in the image above that there are .meta files listed in the file system, but not visible in Unity's Project Window. Unity creates these .meta files for each asset and folder, but they are hidden by default, so you

may not see them in your Explorer/ Finder either.

They contain important information about how the asset is used in the project and they must stay with the asset file they relate to, so if you move or rename an asset file in Explorer/ Finder, you must also move/rename the meta file to match.

The simplest way to safely move or

rename your assets is to always do it from within Unity's project folder. This way, Unity will automatically move or rename the corresponding meta file. If you like, you can read more about .meta files and what goes on behind-the-scenes during the import process.

If you want to bring collections of assets into your project, you can use Asset Packages. See Asset Packages for more details.

► COMMON TYPES OF ASSETS



Image Files

Most common image file types are supported, such as BMP, TIF, TGA, JPG, and PSD. If you save your layered Photoshop (.psd) files into your Assets folder, they will be imported as flattened images. You can find out more about importing images with alpha channels from photoshop, or importing your images as sprites

3D Model Files

If you save your 3D files from most common 3D software packages in their native format (eg, .max, .blend, .mb, .ma) into your Assets folder, they will be imported by calling back to your 3D package's FBX export plugin (*). Alternatively you can export as FBX from your 3D app into your Unity project. Read more about importing 3D files from your 3D app.

Meshes & Animations

Whichever 3D package you are using, Unity will import the meshes and animations from each file. For a list of applications that are supported by Unity, please see this page.

Your mesh file does not need to have an animation to be imported. If you do use animations, you have your choice of importing all animations from a single file, or importing separate files, each with one animation. For more information about importing animations, please see of the manual.

Audio Files

If you save uncompressed audio files into your Assets folder, they will be imported according to the compression settings specified. Read more about importing audio files.

Other Asset Types

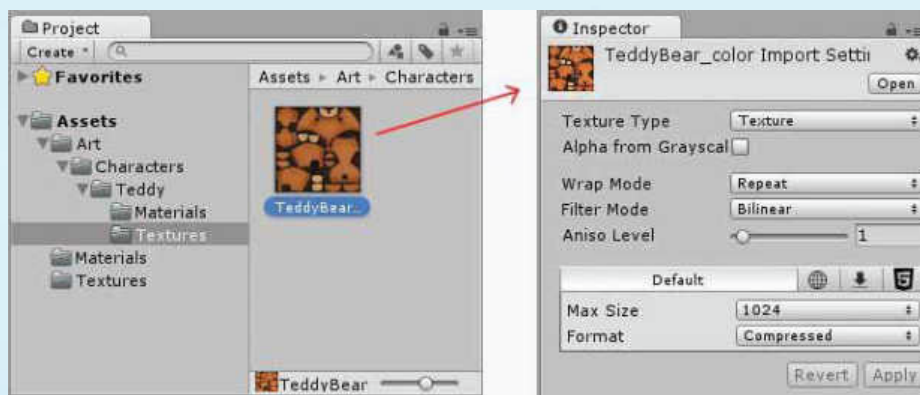
In all cases, your original source file is never modified by Unity, even though within Unity you can often choose between various ways to compress, modify, or otherwise process the asset. The import process reads your source file, and creates a game-ready representation of your asset internally, matching your chosen import settings. If you modify the import settings for an asset, or make a change to the source file in the Asset folder, will cause Unity to re-import the asset again to reflect your new changes.

Note: Importing native 3D formats requires the 3D application to be installed on the same computer as Unity. This is because Unity uses the 3D application's FBX exporter plug-in to read the file. Alternatively, you can directly export as FBX from your application and save into the Projects folder. **PC**

Unity 3D TUTORIAL 2 >>>

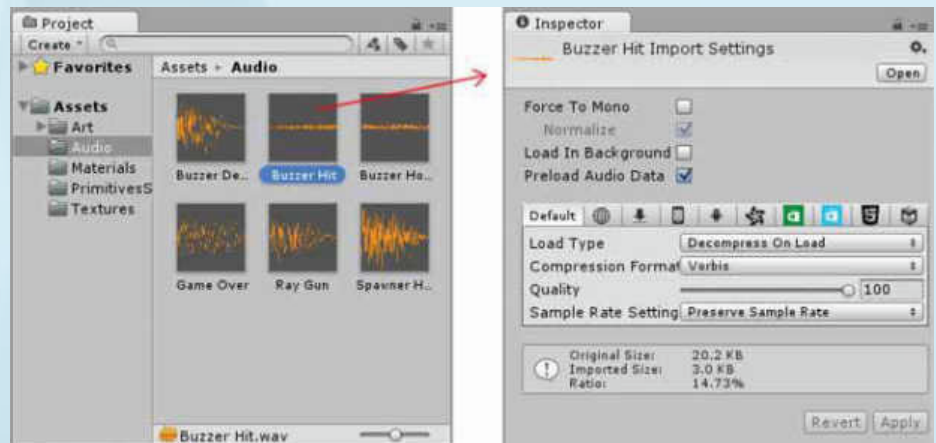
IMPORT SETTINGS

Each type of asset that Unity supports has a set of Import Settings, which affect how the asset appears or behaves. To view an asset's import settings, select the asset in the Project View. The import settings for this asset will appear in the Inspector. The options that are displayed will vary depending on the type of asset that is selected.



For example, the import settings for an image will allow you to choose whether it's imported as a texture, a 2D sprite, or a normal map. The import settings for an FBX file allow you to adjust the scale, generate normals or lightmap coordinates, and split & trim animation clips defined in the file.

For other asset types, the import settings will look different. The various settings you see will relate to the type of asset selected. Here's an example of an Audio asset, with its related import settings shown in the inspector. ▶



If you are developing a cross-platform project, you can override the "default" settings and assign different import settings on a per-platform basis.

▶ Importing from the Asset Store >>>

The Unity Asset Store is home to a growing library of free and commercial assets created both by Unity Technologies and also members of the community. A wide variety of assets is available, covering everything from textures, models and animations to whole project examples, tutorials and Editor extensions. The assets are accessed from a simple interface built into the Unity Editor and are downloaded and imported directly into your project.

Unity users can become publishers on Asset Store, and sell content they have created.

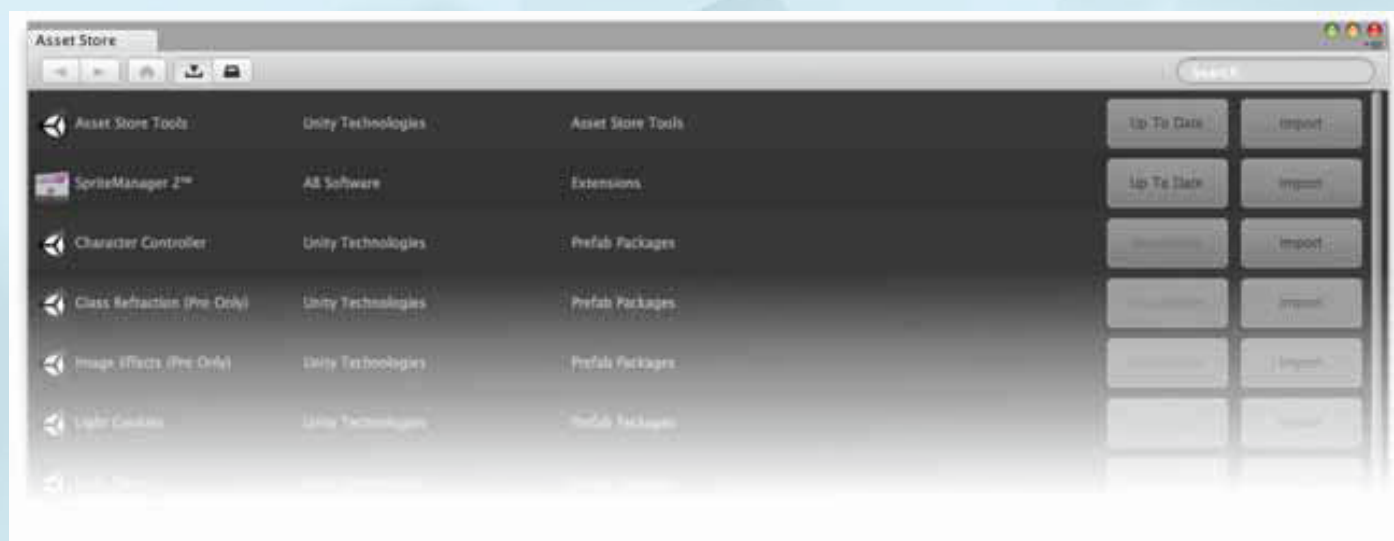
You can open the Asset Store window by selecting Window->AssetStore from the main menu. On your first visit, you will be prompted to create a free user account which you will use to access the Store subsequently.



To the right of these are buttons for viewing the Download Manager and for viewing the current contents of your shopping cart.



The Download Manager allows you to view the packages you have already bought and also to find and install any updates. Additionally, the standard packages supplied with Unity can be viewed and added to your project with the same interface.



Location of Downloaded Asset Files

You will rarely, if ever, need to access the files downloaded from the Asset Store directly. However, if you do need to, you can find them in :

~/Library/Unity/Asset Store

...on the Mac and in :

C:\Users\accountName\AppData\Roaming\Unity\Asset Store ...on Windows. These folders contain subfolders that correspond to particular Asset Store vendors - the actual asset files are contained in the appropriate subfolders. **PC**



- 100 -
GAMETIME NEWS

- 106 -
DIRT RALLY

- 108 -
GUILTY GEAR XRD
-SIGN-

- 111 -
HOMEWORLD:
DESERTS OF KHARAK

- 114 -
DRAGON'S DOGMA:
DARK ARISEN

GameTime

This is where the fun begins



110 LIGHTNING RETURNS:
FINAL FANTASY XIII



100



106



111



114

GAMING GIANT MOVES INTO ESPORTS

Activision buys out US-based Major League Gaming

Major League Gaming, the once mighty American eSports organisation, has been bought by Activision Blizzard in a \$46 million deal.

MLG is not being liquidated by Activision, but retained by the new owners as an eSports-focused division of the major publisher. MLG will exist under the existing Activision Blizzard Media Networks (ABMN) division, and current MLG CEO, Sundance DiGiovanni will stay on.

MLG has struggled in recent years following its early success organising tournaments for the likes of StarCraft 2 and Call of Duty, and has had to seek debt financing to the tune of \$6 million to meet its financial obligations. In October 2015, MLG also lost the hosting rights to the Call

of Duty World League's Pro Division to rival ESL (Electronic Sports League).

According to a report from eSports Observer, which claims to have obtained documents detailing the sale, the majority of the \$46 million will go towards paying off MLG's debts, leaving little for stockholders. Unsurprisingly, many shareholders are disappointed with the deal, which went ahead without their consent thanks to a legal loophole in Delaware General Corporation Law.

While MLG tournaments featuring Activision Blizzard games will likely carry on under Activision, it's not yet clear how the purchase will affect tournaments like the upcoming Counter-Strike: Global Offensive Major Championship.

Regardless, with companies like Valve and Riot running their own tournaments

for games like Dota 2 and League of Legends, organisations like MLG are rapidly becoming unnecessary.

Fellow publisher EA has recently jumped on the eSports bandwagon too, launching its Competitive Gaming Division (CGD) in order to turning existing EA games like FIFA, Madden NFL, and Battlefield into viable eSports franchises. **PC**



PIE AIMS FOR THE SKY

New video network from the famous Swede

YouTube network Maker Studios and its biggest star, Felix "PewDiePie" Kjellberg, who currently stands at 41 million subscribers has announced the formation of Revelmode, a new video network helmed by the iconoclastic Swedish star.

In its first video, Kjellberg talks up the venture as "me and a bunch of really awesome YouTubers coming together, as a group, to do awesome things."

"I have been with a network throughout my entire history on YouTube... it's been a rollercoaster," Kjellberg said. "I think networks can be something very positive for everyone involved."

He promised that, at the start, it will be a select group of broadcasters which also includes popular YouTubers such as Markiplier (11 million subscribers) and JackSepticEye (8 million subscribers) among others. "I hope in the future that you can be involved as well," Kjellberg said. **PC**





HOLODECK GETS REAL

New gaming monitors combine to create the ultimate gaming arena



How would you like to be in a virtual basketball court or battlefield? Enter the real-life version of Star Trek's Holodeck – or at least Samsung's version of it.

As part of an interactive showcase, Samsung transformed some of its CES booths into the Ultimate Gaming Room, highlighting the enhanced immersion and comfort of its new gaming monitors, featuring games from Electronic Arts Inc. (EA).

Visitors to the Ultimate Gaming Room could play three of EA's videogame titles, NBA LIVE 16, Battlefield 4 and Need for Speed, on Samsung's entertainment-focused monitors. Each of the room's three gaming stations are spotlight a different Samsung monitor design, ranging from

curved to UHD to wireless charging, and enable attendees to view a variety of EA games with enhanced visual presentation.

The opening of the Ultimate Gaming Room coincided with the unveiling at CES of Samsung's first curved gaming monitors. These 1800R curvature monitors are designed to match the natural shape of the human eye, offering wide viewing angles while reducing strain on players' eyes, even during extended use. Samsung's curved gaming monitors further prevent eye fatigue through embedded flicker-free and Eye Saver technologies, which maintain a consistent visual presentation. Players also benefit from reduced input latency, stutter and lag, through the monitors' AMD FreeSync technology over HDMI.

Samsung's Ultimate Gaming Room also allowed visitors to view EA games on several of its other pioneering gaming monitors. The UE850 and UE590 UHD gaming displays combine the core eye-preserving visual benefits with on-screen rapid motion clarity and a fast 1ms response time. For added convenience, Samsung's SE370 monitor enables players to charge their mobile devices through a compatible wireless pad as they play. **PC**




eSPORTS GETS HOTTER

ESPN Gets into eSports broadcasting

Sports enthusiast hub ESPN has launched its own dedicated eSports section, headlined by a handful of known eSports reporters, as it doubles down on its earlier efforts to cover videogames as a competitive sport.

It is a notable, if unsurprising, move forward by the sports media giant, which has been taking tentative steps into covering eSports for some time now by partnering with developers like Valve and Blizzard to broadcast tournaments of games like Dota 2 and Heroes of the Storm on ESPN channels,

and publishing an issue of ESPN Magazine dedicated to eSports.

The move comes in the wake of Activision Blizzard CEO Bobby Kotick's decision to describe his company's acquisition of Major League Gaming earlier this month as a deal that "furthers our plans to create the ESPN of eSports." 




TRIAL MATTERS

Family of Jonas Savimbi sues Activision

Activision Blizzard is being sued in French court over what the family of deceased Angolan rebel leader Jonas Savimbi claim is an inappropriate depiction of the man in Treyarch's 2012 release Call of Duty: Black Ops II.

This comes less than a year and a half after Activision prevailed in a very similar lawsuit filed by former Panamanian dictator, Manuel Noriega, over his depiction in the very same game. That lawsuit was deemed "frivolous" by an L.A. Superior Court judge in California. But this new lawsuit is filed by children of Savimbi living in France against the French branch of Activision Blizzard.

The family of Savimbi is seeking €1 million (US \$1.09 million) in damages from Activision, which Savimbi family lawyer Carole Enfert alleged depicted the deceased rebel leader as a "big halfwit" in Black Ops II. 





HIGHER THEY GO

VR and eSports set to grow this year

According to Deloitte Global, in eSports, Deloitte predicts global revenues of US \$500 million for 2016, up 25 percent year-over-year.

The analysts said the addition of virtual reality to eSports spectator activities may make for a more interesting proposition, but VR itself is still a nascent technology. Deloitte is predicting that VR will have its first \$1 billion year in 2016, with 2.5 million headsets generating about \$700 million in hardware sales, and 10 million game sales making up the remaining \$300 million of the projection.

Initially, Deloitte believes VR will exist as a niche consumer market, with enterprise uses financially insignificant until at least 2017. Deloitte also examined well-established markets, among them mobile gaming. The firm believes that mobile gaming will grow 20 percent year-over-year to \$35 billion and overtake PC (\$32 billion) and console (\$28 billion) to become the leading platform for software revenue. **PC**



TWITCHY FEELING

New category on popular streaming service

Aames livestreaming titan Twitch recognised the enduring popularity of the various “Twitch Plays” events by creating a new “Twitch Plays” directory dedicated to such streams.

It is a notable response to the enduring after-effects of Twitch Plays Pokemon, the 2014 chat trick-turned-phenomenon in which thousands of viewers played an emulated version of the game simultaneously with chat commands parsed via script and fed to the game.

The surprising popularity of the game inspired game developers and spawned a host of imitators, who will now finally have their own dedicated category on Twitch.

According to Twitch, any stream of an autonomously-running game which takes inputs from the audience via commands entered into either Twitch chat or a “second screen” interface can be listed in

the new category. Also, Twitch Plays games must be seen to use Twitch as their primary means of delivering content to players and must not put a cap on the number of people who can play simultaneously. **PC**




CLASSIC OVERLOAD

Atari classics scheduled to land on PC

Atari will be bundling 100 of its classic titles together for PC this year in Atari Vault, the long-standing game publisher has announced. Such titles include Asteroids, Centipede, Missile Command, Tempest, Warlords and more.

They'll be given new features such as added local and online multiplayer options, an upgraded user interface, and Steam Controller support.

"For the first time ever, fans from around the world can challenge other players on Steam Leaderboards and compete for arcade supremacy - all while rocking out to the games' original 70's and 80's soundtracks," Atari teased of its upcoming anthology.

Atari Vault is being developed by Code Mystics, who previously handled the PlayStation ports of Nidhogg, Dragon's Lair 1 & 2 on iOS, and co-developed Rare Replay on Xbox One. 




RUMSFELD RUMBLES AGAIN

Former US Secretary of Defense releases videogame

Former US Secretary of Defense, Donald Rumsfeld, has taken to game development by releasing a new version of Solitaire on the App Store. Dubbed "Churchill Solitaire", this new twist on an old classic is allegedly based on a version of Solitaire played by the former prime minister during his time in office.

According to the 83-year-old Rumsfeld, Churchill taught this unique version of Solitaire to a Belgian government aide and eventual NATO ambassador André de Staercke. Three decades later, in 1973, Staercke taught Churchill's unique adaptation of the game to Rumsfeld.

Rumsfeld went on to explain that Churchill Solitaire uses two decks of cards, rather than the typical one, and is played across 10 rows instead of seven. "Instead of simply moving cards so that they fit back into single-suited piles from Ace to King, Churchill Solitaire includes an extra row of six cards-the Devil's Six-that a player has to liberate as well," the former US Secretary of Defense explained. 





MIGHTY DELAYED

Keiji Inafune's latest game is held back yet again

Mighty No. 9, Keiji Inafune's spiritual successor to Mega Man, has been delayed again. The announcement was made in an update to Kickstarter backers, where Inafune who designed Mega Man along with a number of iconic properties for Capcom, before leaving in 2010 - explained developer Comcept encountered "critical" issues in the game's online matchmaking.

"In preparation for the February release of Mighty No. 9 we have been working hard with our partners to resolve any network issues and porting work necessary to publish Mighty No. 9 on the various platforms," he said. "However, the issues relating to the network modes were more critical than expected, and it has become apparent that we will need to delay the game from its February 9 release date.

"We have been working up until the very last moment to resolve these issues in

order to make the February release, but it has become clear that we no longer have enough time to fix the issues and have everything prepared for release."

According to Inafune, the delay is necessary as the solution to the issues are slightly different for each of the platforms the game is being released on. Since there are no longer updates being made to the game's engine, each fix must be manually implemented.


"Unfortunately, this is all a result of miscalculations on the part of us, the development staff. As a result, our fans who have been looking forward to Mighty No. 9 have been forced to wait for over half a year longer than expected, and for that we are sincerely sorry. I want to take this chance to apologise personally, and on the behalf of the development staff.

"Over the end-of-the-year-break and the beginning of 2016, the development staff has been working on these issues non-stop

without break, and thanks to their hard work the end is in sight. We continue to make progress to resolve these last issues that have been holding up the release of the game on the different platforms."

A new release date for Might No. 9 has not been specified as the team wants to "wait and make sure everything is confirmed" first. Realistically, however, the game is likely to launch in spring 2016, Inafune said.

"For this 3rd delay of the game, we have no excuses for disappointing our fans and especially our backers once more. We want to take this chance to express our sincerest apologies to everyone who has looked forward to the release.

Mighty No. 9 was originally slated to launch in 2015 before being pushed to February 9, 2016. It is set for release on PS4, Xbox One, and Wii U on physical discs and digitally. 



Realism is the Name

Dirt Rally

by andrew tong

This year, Codemasters has made its comeback with the brand new entry in the Dirt franchise entitled *Dirt Rally*. An early access version of the game was released on 27th April 2015 and a full version was released on 7th December 2015, all via digital distribution service Steam, exclusive to the PC.

The game is also coming to Xbox One and Playstation 4 consoles in April. Codemasters' previous games like *Dirt Showdown* have failed to gain recognition among the driving game fans in terms of gameplay and quality. But the move by Codemasters to put the game into Early Access seems to have been a great idea to get feedback from their core audience.

BUG-FREE

I have played a few rally games over the years, but *Dirt Rally* is the one that impressed me from the moment i started the game. The game feels solid, compact

and real. It does deliver quality realism and a unique sensation of driving a rally car.

Another ideal move by Codemasters is that *Dirt Rally* features hand-in-hand game development with a community of racing gamers by using their feedback to get the true simulation of the sport they love. Due

to this feedback, I have not encountered a single bug with the game, despite having played it for more than 15 hours.

Dirt Rally primarily focuses on a career mode in which players initially are given limited amount of in-game money and they then have to go through





◀ challenges to obtain every vehicle in the shop. The mode also allows players to explore some popular locations from the real-world sport.

MULTIPLE MODES

Rally, hill climb and rallycross are featured in the game too and players can find a selection of cars of the past and present, each requiring a different approach. Dirt Rally offers various locations such as Greece, Finland, Monaco, Italy and more, each with different styles and layouts that will test your driving skills.

RESPONSIVE CONTROLS

Controlling the cars feel very responsive and so new players certainly will need more time and practice if they want to improve. The game itself is very hard to get used to and it is even harder to have a perfect slide and turn. Still, I love the hardness



because you feel even more satisfied and accomplished when you are able to make that perfect turn.

If you find the game too hard to play, Dirt Rally provides a number of assists such as traction control and stability management assists to help you play the game, in a more pleasant manner.

VARIED SURFACES

There are various surfaces to drive on in the game, from the high speed tarmac stages of Baumholder to the icy cold mountain roads


of Monte Carlo. Thus, controls of the car on those surfaces are different.

You must consider how to approach each course in order to climb to the top in the leaderboards. Besides, Dirt Rally allows the players to adjust the speed and timing of the pace notes to suit their own preferences in the options menu.

MULTIPLAYER

There is also a PvP mode offered by Dirt Rally to players who are looking for some multiplayer competition. Players can currently compete in 3 locations which are Hell, Lydden Hill, and Höljes.

Again these circuits come with several different layouts, each with its own style to test your skill. I kind of prefer the Lydden Hill as it gave me the best driving experience among the three circuits. The track moves around in the same way that it would on TV, with a mix of gravel and tarmac, keeping the racing alive.

One thing I like about the PvP mode in Dirt Rally is the licensed World RX cars and drivers which run with the same system as seen in the real world RallyX series. There is also Pikes Peak which is as hard in the game as it is in real life. 



DIRT RALLY™

PUBLISHER: Codemasters
PLATFORMS: PC
RELEASE DATE: December 2015
GENRE: Racing/Rally driving
PLAYERS: Multiplayer

score: **8** /10
GOOD

Fight Different

Guilty Gear Xrd -SIGN- by andrew tong

Guilty Gear Xrd -SIGN- is the fast paced, highly technical 2D fighting game developed by Arc System Works. It is the fifth installment in the Guilty Gear series developed using Unreal Engine 3. Guilty Gear Xrd -SIGN- first debuted in 2014 in arcades, showing up on PlayStation 3 and PlayStation 4 at the end of the year and finally was brought to Microsoft Windows via Steam on December 9th, 2015.

the traditional 2d version. The game looks visually stunning with vibrant colours. It looks as good or better than most modern television animes, OVAs or movies. The game runs fluidly and game audio is well designed too, with face paced relentless music that ramps you up during gameplay.

Guilty Gear Xrd -SIGN- also features a more forgiving environment for players new to the complexity of the series. The game provides a tutorial to the new

players for them to explore the basic and deeper fighting mechanics. After mastering the tutorials, players are able to play on different modes such as Story (need to be unlocked), Arcade, Medal of Millionaire (M.O.M) which unlock various items for your characters after defeating AI opponents, Training, and Challenge Modes. Local and network versus play options are also made available to challenge your friends or players from ▶

NOT SO FAMOUS

Since the series debuted in 1998, Guilty Gear doesn't seem to have the massive recognition and competitive cachet of the Street Fighter series and doesn't seem to get as much recognition as Mortal Kombat or Tekken did too. I wouldn't get to know and play the game if it wasn't my friend who introduced me this game. Although it is not as famous as the big titles mentioned above, it still has its own unique style that's worth checking out.

VISUALLY STUNNING

Built using the Unreal 3 engine in 3D, Guilty Gear Xrd -SIGN- is a huge departure from





around the world in Player Matches or Ranked Matches.

COMPLEX PLOT

Story mode is considerably short and it is in movie format. It has no fighting involved in the gameplay and basically works as an anime explaining the Guilty Gear universe, with a total of ten chapters with both A and B portions to them. Due to the unusual plot of the story, players who are new to the series will find some of the chapters hard to follow.

Arcade mode, on the other hand is like story mode but having actual gameplay. In this mode, plots are broken up into pieces and presented after beating opponents in 1 vs 1 matches. The story in Arcade mode and in Story mode are different. In fact, plots in Arcade mode are served as a prelude to the Story mode.

In M.O.M. mode, you get to fight against the entire Guilty Gear cast in a marathon battle. Each time you beat any opponent, a medal will be dropped serving as in-game currency. You can then spend the medal to make in-game purchases such as battle items like bombs and jackets and rings that provide passive defense buffs. Stats like HP, attack powers, etc. can also be boosted permanently with the medal by spending on power orbs. These boosts can be carried between battles, thus giving a long-term advantage.


In challenge mode, you get to learn every characters' special moves and their combos. This is very helpful to players, especially new players to this genre as the mode provides introduction of the mechanics of the game. New players will feel challenged but at the same time they are guided.



HARD TO MASTER

It took quite some time for me to learn the controls and movement in Guilty Gear Xrd -SIGN-. There is an ability in the game called Yellow Roman Cancels(YRC) which slows down time slightly when activated. This will then allow you to create combos in a perfect manner. The game also provides a system called 'Roman Cancel System', which allows players to exit out of the attack animations.

VERDICT

As a fighting game, Guilty Gear Xrd -SIGN- managed to catch my attention. The cel-shading 3D models give a 2D aesthetic, and look outstanding in the final product. The story crafted in the anime rivals that of Street Fighter and Mortal Kombat's universes. The game runs fluently on PC, giving opportunity to the expressive anime visual style to show off its fullest potential. All in all, if you are a fan of fighting games, then this is certainly worth playing and if you are new to this genre, be sure to give it a go. Though it is hard and challenging, it allows for a more rewarding and satisfying experience once you master the mechanics and the combos. 



PUBLISHER: ARC Systems Works
PLATFORMS: ARCADE, PS3, PS4 and WINDOWS
RELEASE DATE: 9 December 2015 (WINDOWS)
GENRE: Fighting
PLAYERS: Multiplayer

score: **7** /10
GOOD



Lightning Unchained

Lightning Returns: Final Fantasy XIII

by andrew tong

It took a really long time, but eventually Square Enix has brought Lightning Returns: Final Fantasy XIII to PC. PC fans of Lightning Returns who wanted at all costs to know the epilogue of the story without having to buy a console, have been waiting for long for the PC release.

Built using Crystal Tools engine, Lightning Returns serves as the final entry in the trilogy of Final Fantasy XIII games. It is a direct sequel to Final Fantasy XIII-2 and concludes the storyline of Final Fantasy XIII, and forms part of the Fabula Nova Crystallis subseries. The game is different from the other two series by putting players in the role of Lightning as more of an action heroine as opposed to a typical JRPG, party-based adventure.

MORE OF THE SAME

Lightning Returns is still the same game of yesteryear, with its strengths and weaknesses. In this new adventure set 500 years after Final Fantasy XIII-2, Lightning has been brought back by the God, Bhunivelze. Bhunivelze then tasks Lightning to be a ferryman who is to save the souls of the dying world formerly known as Gran

Pulse, so to make sure that the souls are set free and reborn on a new world created by him that is sustainable for long-term human existence. In return, Bhunivelze promises Lightning that he will resurrect her sister, Serah if she manages to save the world from destruction, which will occur in 13 days.

SMOOTH GAMEPLAY

Of all the PC porting of the Final Fantasy series, Lightning Returns

is the most successful one from a technical standpoint. Unlike what happened on the console, this version is distinguished from the other platform with the use of better textures (not all, unfortunately) and the absence of annoying slowdowns on PS3 and Xbox 360. Besides, gameplay on PC is more stable. From 720p/30fps of the console versions to 1080p/60fps on PC, it runs with maxed settings without too much





trouble on a rig with roughly three to four year old components.

FUZZY GRAPHICS

It's unfortunate that there are still some flaws in nature derived from the old-gen title porting on PC. The game's graphical quality as well as shadow resolution looks low, which somehow results in gruesome visual effects. Aliasing, in particular, is too strong and sharp thus penalising the artistic quality.

It is apparent in a lot areas, the texture work is spotty to say the least. Outside of the graphical enhancements and adjustment, it has additional keyboard support. While it might be a nice inclusion for games under the Steam banner, it is advisable to use a gamepad instead to play the game.

In Lightning Returns, the developers have given players a certain amount of time to finish the game which is as mentioned above, 13 in-game days. Every in-game day equates to 72 minutes of real-world time. However the clock only ticks when player is wandering or exploring around the in-game world, and not during cut-scenes or combat.

SIDE QUESTS

Besides, there are many interesting side-quests out there to keep you occupied. Some of which have heartfelt or fun back-stories. But, while those quests are interesting, some of them actually lack purpose. The game looks like it has a lot of quests to do upon first glance, but the in-game world presented is rather quaint, with the content at large being quite smaller than its developers would have folks believe. You can also replay the game after beating the game once by playing New Game+, to further deepen the experience.

The actual combat system in the game is the one that has the most redeeming quality in Lightning Returns. Instead of taking a party of two or more into combat, Lightning fights alone on the battlefield this time, befitting her personality and the mechanics at play.

MASQUERADE

There are various structures, combinations of costumes, shields,



weapons and abilities that allow you to change the fighting style of Lightning. All combat is essentially decided by the costumes unlocked, purchased and equipped. These costumes called "Garb" in-game, each carry their own unique statistics such as boost HP or strength, and increase MP and ATB regeneration.

Some costumes are even fitted automatically to specific skills. For instance, "Heartstealer" Garb provides Leaping Rush and Evade while hastening the recovery of ATB. Thus, it is important to know which attacks are pre-established with a costume, as Garbs only allow up to four attacks to be assigned to them. The best part is, there are approximately 70 pieces of Garb in all to collect. When put altogether, there are like hundreds or even thousands of customisation options when it comes to matching Garb with attacks and accessories, as well as items and weapons.

SHORT ON CONTENT

Lightning Returns's PC port is a product of good quality. While it seems to be lack of content as the game feels like it should only be about 15 hours long instead of upwards of 40. While there could have been more graphical options and a lot of the existing graphic effects such as shadow resolution and texture work show their age, the smooth gameplay is welcome.

All in all, Lightning Returns on PC may not be a perfect conversion and port, but given the difficulties encountered by Square Enix with its previous titles, it is still an attractive package.**PC**



PUBLISHER: Square Enix
PLATFORMS: XBOX 360, PS3, PS4 and Microsoft Windows via Steam
RELEASE DATE: 10th December 2015 (Microsoft Windows)
GENRE: Action role-playing

score: **8** /10
GOOD



Carrier Has Arrived

Homeworld: Deserts of Kharak

by rul mk

When Sierra was originally dissolved, all hope for another Homeworld game was lost. Thankfully, Gearbox Software acquired the intellectual property to the franchise and brought us the remastered release of Homeworld and its sequel in February 2015. This year, the series' fans are being treated to another entry to the beloved franchise with Homeworld: Deserts of Kharak, a real-time strategy game and prequel to original series.

Originally developed as a standalone RTS game called "Hardware: Shipbreakers" by Blackbird Interactive, a studio formed by the original Homeworld team after Relic's closure. Due to Shipbreakers' likeliness and tribute to the franchise, Gearbox granted permission for use of the Homeworld IP to Blackbird, and later published the game. Shipbreakers was then rebranded as Deserts of Kharak, which is canonically set within the Homeworld universe.

THE EPIC OF KHARAK

Homeworld: Deserts of Kharak is set a hundred years before the events of the original Homeworld. The desert planet of Kharak hosts two factions, the Coalition and the radical Gaalsien, both of whom are

regularly at war. The story is told in the point-of-view of Rachel S'jet, chief science officer of the land carrier "Kapisi, as she leads a do-or-die expedition to recover an ancient artefact that could save the dying planet.

I've always loved the Homeworld series thanks to its excellent story and presentation, and I'm glad that Blackbird has managed to carry these elements over to the prequel. The story will undoubtedly please veteran fans and newcomers alike,

with the cutscenes presented beautifully with 2D-like animations mixed into the game's real-time engine, and accompanied by Paul Ruskay's powerful musical scores.

GAIN GROUND

Despite focusing on ground-level combat and tactics, Deserts of Kharak plays surprisingly similar to Homeworld. The Land Carrier "Kapisi" acts as your mobile base of operations, and is your lifeline ►





throughout the entire campaign. It handles unit construction, research, and will also provide long range air support.

But what sets the Kapisi apart from Homeworld's Mothership is its ability to allow players to customise its defensive and offensive capabilities. You can go defensive by setting the Kapisi's power output to focus on armour and repair abilities, or convert it into a powerful juggernaut by focusing on range and firepower. The carrier's power distribution must be distributed accordingly or it will suffer from overheating.

While Homeworld's combat is fought in a three-dimensional approach, Deserts of Kharak focuses more on terrain, where gaining high ground is favourable to thwart your opponents' advances. Units stationed on top of hills or sand dunes will receive bonus range, accuracy and damage, thus beneficial for long-range units such as railguns and artillery.

But that doesn't mean camping up high will guarantee you a win. Units in Deserts of Kharak plays with a nicely balanced rock-paper-scissors rule: light units are weakly armoured but are constantly mobile and will overwhelm stationary units, assault vehicles can easily destroy light units but are vulnerable to artillery or airstrikes, and the list goes on.

STAY VIGILANT

Another feature that I enjoyed are the variety of missions in the single-player campaign, which does not primarily focus on your opponents' annihilation. Just to name a few: there are missions that require players to salvage artefacts before the enemy does, rescue allied forces from impending doom, and also ensuring certain units to survive waves of enemies before reinforcements arrive.

The experience is always fresh with different mandatory and optional objectives made available in every mission. But just when you thought you were getting comfortable, the game twists things around and throws you new obstacles to overcome in certain missions. This will challenge your tactical prowess and ability to adapt to situations, which is required to turn the tides back to your favour.

Deserts of Kharak can be overwhelming if you planned your approach poorly, but you can always change the game's difficulty if things get ugly, and retry it again later on a harder difficulty if you're feeling a bit more daring.



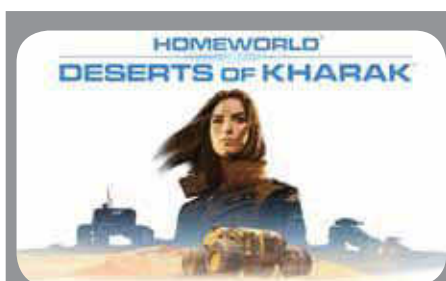
TEAM EFFORT

The game's multiplayer can be fully customised to your liking if you fancy combining several modes together. A total of six players can engage in modes such as Free-For-All, Team Combat, Carrier Annihilation or Artefact Hunt. While the former three are pretty self-explanatory, Artefact Hunt requires a player or team to retrieve the most artefacts found in the provided maps to secure the win. This mode encourages urgency rather than concentrating on building a powerful army, and is really fun when played in teams. While unique on its own, the multiplayer element of Deserts of Kharak lacks the diversity and reception unlike games such as Star Craft II.

A SMALL OASIS

As a fan of the original series, I had a great time playing and completing Deserts of Kharak. However, with only 11 campaign missions and less than 12 hours spent on it, the game does feel a bit too short. Multiplayer and skirmish modes are available to keep you playing, but the heart of the game has always been its campaign. Sadly, there are no expansion DLCs planned as far as we know.

Deserts of Kharak is an excellent new entry to the Homeworld franchise, with a well written narrative leading to the events of the original game. Missions are well thought, and combat can be brutally challenging yet fun. Hopefully with enough good reception for the game, it may encourage Gearbox and Blackbird Interactive to develop more sequels to the series in the years to come. **PC**



PUBLISHER: Gearbox Software
DEVELOPER: Blackbird Interactive
RELEASE DATE: January 20 2016
GENRE: Real-Time Strategy
PLATFORM: PC
PLAYER(S): Singleplayer & Multiplayer

score: **9** /10
GREAT



Dragons May Cry

Dragon's Dogma: Dark Arisen

by rul mk

Wirst and foremost; Dragon's Dogma, developed by Capcom, is by no means a Dark Souls clone. That was pretty much most would have assumed, judging by the game's design style and genre when it was first announced for last-gen consoles four years ago.

Regardless, it became a sleeper-hit and is now a full-fledged expansion called "Dark Arisen", with new content and improvements. It was launched a year after its initial release. Its large following on consoles sparked interest in the PC community, but a port would not surface until 2016 when Capcom finally decided to release Dragon's Dogma: Dark Arisen on the PC, which includes the main game and its expansion. That brings us to our review.

EAST MEETS WEST

Dragon's Dogma places you in the shoes of The Arisen, a token hero whose role is to protect the world of Gransys from evil. Sure, originality is not the game's strong point, but the world itself is well presented with a good amount of supporting characters and lore. Dragon's Dogma is not mind-blowingly

beautiful when compared to the likes of current generation games such as The Witcher 3 or Dragon Age: Inquisition, but its large open-world landscape is flushed out with plenty of locations to explore.

LOOKS THAT KILL

As with other RPG games out there, Dragon's Dogma comes with character creation for both your Arisen and your main pawn to give them a unique appearance,

but don't expect it to be as robust as current generation games. The game also allows you to select one of three starting job classes, which you can later upgrade into an advanced class with greater skills, or a hybrid class if you fancy a mix and match of melee, magic and ranged skills.

The basic classes are still fun to use on their own, but the real fun begins when you choose the hybrid classes that will guarantee you effective combos as you face ▶





off against the various enemies in the game. Although becoming the ultimate Arisen is an important factor, going through the game solo can be very challenging if you're relying on your build alone. That's where Pawns come in.

PAWN STARS

Pawns are basically companion NPCs, and in the lore of Dragon's Dogma, they exist solely as sell-swords to aid The Arisen in their quest. On the whole, the Pawn system is what makes Dragon's Dogma unique, and most games should actually take cues from it.

As you engage in combat and quests, Pawn AI will learn tactics and enemy weaknesses, thus improving their efficiency based on their job classes. Pawn recruitment come in two flavours; in-game generated and the more unique player created pawns, which you can obtain via online sharing.

As mentioned earlier, you're entitled to create your own main pawn by determining their appearance, job class and behaviour, and if you choose to do so, you can upload your main pawn to be shared online with other players. While useful in combat, Pawns have a knack of barking the same comments and warnings, which can be extremely annoying, but can be switched off in the options menu. Thank you, Capcom.

HOLD ON TIGHT

Combat in Dragon's Dogma is like an amalgam of Monster Hunter and Devil May Cry. As weird as that sounds, it's actually pretty fun. Players can assign special moves, magic, and defense skills to their control layout, thus allowing the freedom of multiple combinations that suit their playstyle. It's possible to chain these moves into a stylish combo or finisher to make combat more exciting. For instance; you can stun an enemy with your shield, launch them up with your sword, toss them a fireball while they're in midair, and finally finishing them off with a dashing stab as they hit the ground.

Are you convinced that this isn't a Dark Souls clone yet? But to be fair, both games share one important trait: character stamina. Be as flashy as you want in Dragon's Dogma, but keep in




mind that these moves will consume stamina, and your character will be left vulnerable to enemy attacks if you run out of it.


The game also adds more depth into the combat experience when it comes to large monster encounters. While combo attacks still work against them, the best way to take them down is by focusing on their individual weak points. You're able to jump onto large monsters, and strike its vital areas to deliver more damage.

However, they won't make it easy for you, and will eventually struggle to throw you off. Holding on while attacking large monsters will also consume stamina, and even more if they begin to struggle. Experienced Pawns will also attempt to cling onto monsters, and assist you to take it down. It's rather assuring that this combat mechanic also applies to your companions, rather than being a player-character oriented design.

ONE-TIME AFFAIR

Dragon's Dogma is overall fun and will keep you engaged with things to do, and you'll definitely clock in above 30 hours of game time if you're looking to complete the whole thing. Unfortunately, it's one of those games you'd probably won't return to, since there's nothing else to look forward to in starting over, and the novelty has pretty much worn off after your first run. Regardless, Capcom has done a decent job with Dragon's Dogma by incorporating various unique features to the action RPG genre, and I definitely hope to see more of the series in the coming future. 





RELEASE DATE: January 15, 2016
(PC)
DEVELOPER: Capcom
PUBLISHER: Capcom
PLATFORMS: PlayStation 3, Xbox 360, Microsoft Windows
GENRE: Action RPG

score: 7 /10

GOOD



The Future of HYBRID COMPUTING

PC.COM interviews Raja Koduri, Senior Vice President and Chief Architect, Radeon Technologies Group at AMD.

PC.com: What are the key challenges facing Heterogeneous Computing today?

Raja Koduri: Broader awareness of Heterogeneous Computing and best practice in development. The market talks about CPU vs. GPU or Host and Device and how one device is better than the other. The problem is we need

to change the frame of reference to the total system; this is what Heterogeneous Computing is about.

You can have a tightly integrated SOC where the CPU and GPU are on the coherent bus and share a single memory pool. But you can also scale up to larger scale system with a cluster of CPUs and GPU's communicating on common external I/O bus.

We as an industry need to begin to build tools, libraries, and applications that allow the developer to focus on the developer problem he is interested vs. decomposing his problem so he has

key kernels which run through separate toolchains that can exploit the device he is looking to leverage for performance uplift. This shift will make a big difference in developer productivity and class of application you begin to support in heterogeneous computing environments.

This was one of the reasons we built HCC C++ compiler. It was developed to break down the barriers to broader developer adoption and simplify how a developer approaches these systems while still reserving the performance tuning capacities you had with historical device specific compilers.

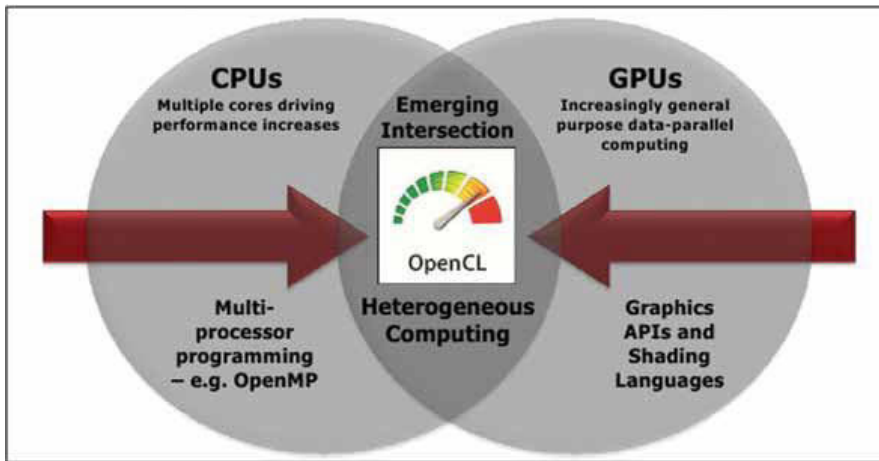


Raja Koduri

Senior Vice President and
Chief Architect, Radeon
Technologies Group at AMD.



*Enabling today.
Inspiring tomorrow.*



- Solid headless driver with stable programming runtime
- Core development tools on the level of what we had on the CPU with offline development flows
- Support for the key languages used for research, production & pipeline development; C++, and Python
- Algorithmic understanding on how we best map advanced render solutions to the GPU
- Support for multi-process to allow processing of more than 1 frame concurrently.

Enough local memory to enable multiple renders concurrently. We now have GPUs with 16 to 32GB and larger on-chip caches. GPUs are also rolling out with High Bandwidth Memory (HBM) driving an even bigger advantage of memory bandwidth and improved latency

Improved performance and reduction in latency on queuing work lowers the latency of data transfer.

Native direct to ISA compilation removing the overheads of our traditional just in time compilation foundation.

Much improved power density of GPUs in servers.

One paramount issue for GPUs in premium production space for Big ▶

PC.com : Do you feel APIs like OpenCL are flexible enough today to make Heterogeneous Computing ubiquitous?

Raja Koduri: OpenCL is rich C-based language that can solve a broad class of problems. Do we believe there are other ways to give even more control of the GPU to the developer? Yes, we do. For example, when you want even more control of the GPU, you want to manipulate ISA instruction directly.

For four years we have published our GCN ISA Manuals for every family of GPUs we have released. However, we did not have a standard way to exploit this. Moving forward, we are going to give application and system level developer tools to access our hardware directly via GCN ISA assembly programming.

We also again recognise we need to address all communities of developers. One of these communities currently choose CUDA. With the Boltzmann Initiative, we put in place key tools that better meet their needs starting with HCC, which supports C++ with C-based memory management and Gid dispatch support. This is combined with the HIP runtime API to simplify their access to our hardware.

PC.com : What are the key roadblocks to GPU-based final frame film rendering?

Raja Koduri: Let's take a different direction on your question by looking back at the challenges we saw with GPU-based final frame rendering over the last 5 years and the core issues being solved.





◀ Shows is that they need absolute driver stability and advanced management tools. As they say, the "Show Must Go On." After 12-18 hours of continuous rendering, at 9AM in the morning, the VFX Supervisors start the Dailies with his team. The render wrangler needs a stable system to move the shot through the night. Here we really need to see proven shot throughput to get the VFX and CG industry excited to move in this direction.

PC.com : Do you think it would be possible to have a GPU-accelerated Renderman while maintaining the same programmable flexibility?

Raja Koduri: If you start with your first question on Heterogeneous Computing and understand that we are working with a code base that is built on 27 years of legacy and continuously refactored for new innovations like RIS.

Also with these changes you see new directions on how you program shaders. We are seeing emergence leveraging C++ , with this in mind if you leverage heterogeneous compute based development tools that exploit the CPU and GPU fully in concert. We will be able to develop shaders with the flexibility maintained. The ISO C++ standard is driving in the right direction with Parallel STL and also the work we have been doing with HCC since Renderman is evolving to

richer C++ based shader support.

PC.com : What do you see as the future of Heterogeneous Computing on mobiles?

Raja Koduri: Mobile today already has advanced in the utilisation of heterogeneous computing since they live in the very power constrained environment. So they always seek best power/performance solution to solve the problem. They heavily use CPU + DSP + ISP + GPU in their feature rich SOC. The issue today is that it is only exposed to the system vendors, OS and chip vendors themselves. The big future here is how we expose that capability to a broader set of developers.





ABOUT RAJA KODURI

Raja Koduri is senior vice president and chief architect of the AMD Radeon Technologies Group, responsible for overseeing all aspects of graphics technologies used in AMD's APU, discrete GPU, semi-custom, and GPU compute products.

He most recently drove AMD's innovation in visual and accelerated computing as corporate vice president of visual and perceptual computing, including the development of the industry's first graphics chip with integrated High-Bandwidth Memory (HBM) and AMD's LiquidVR initiative, a series of technologies and toolkits to deliver more compelling and realistic VR experiences.

Prior to joining AMD, Koduri served as director of graphics architecture at Apple Inc. where he helped establish a leadership graphics subsystem across the Mac product family and led the transition to Retina computer displays. Prior to joining Apple, Koduri worked for S3 Inc. and ATI Technologies.

Koduri holds a Master of Technology degree in Electronics and Communications from IIT Kharagpur, India. He also serves as Chief Technical Advisor to the Board of Directors for Makuta Visual Effects.

Heterogeneous Computing

Heterogeneous computing refers to systems that use more than one kind of processor.

These are multi-core systems that gain performance not just by adding cores, but also by incorporating specialised processing capabilities to handle particular tasks.

Heterogeneous System Architecture (HSA) systems utilise multiple processor types (typically CPUs and GPUs), usually on the same silicon die, to give you the best of both worlds: GPU processing, apart from its well-known 3D graphics rendering capabilities, can also perform mathematically intensive computations on very large data sets, while CPUs can run the operating system and perform traditional serial tasks.

The multi-core era also saw some interesting developments in GPUs, which were growing in sophistication and complexity, spurred on by advances in semiconductor technology. GPUs have vector processing capabilities that enable them to perform parallel operations on very large sets of data – and to do it at much lower power consumption relative to the serial processing of similar data sets on CPUs.

This is what allows GPUs to drive capabilities such as incredibly realistic, multiple display stereoscopic gaming. And while their value was initially derived from the ability to improve 3D graphics performance by offloading graphics from the CPU, they became increasingly attractive for more general purposes, such as addressing data parallel programming tasks.

The early efforts to leverage GPUs for general purpose computing coincided with a notable shift in consumer culture. There was a dramatic increase in the availability and quality of digital content, coupled with an increasing consumer appetite for rich visual experiences like video playback and viewing content in HD.

At the same time, the emergence of mainstream operating system support for advanced multitasking began to require processing efficiency of an entirely new magnitude. And that's why heterogeneous computing, which brings together the best of both CPUs and GPUs, is essential to driving faster and more powerful processor designs for new and better experiences. **PC**



AMD

*Enabling today.
Inspiring tomorrow*

SUBSCRIPTION FORM

RM114
1 YEAR - 12 ISSUES
Peninsular Malaysia
& Sabah and Sarawak (RM137)

Subscribe
Now &
Save Up
to 20%

RM203.50
2 YEAR - 24 ISSUES
Peninsular Malaysia
& Sabah and Sarawak (RM243)

ORDER HOTLINE

Call us to get the next issue delivered
right to your doorstep

03-7880 2611

(Mondays to Fridays, 9.00am-6.00PM)



Plus! Two lucky subscribers stand a chance
to win an Audio-Technica ATH-C100G
Headphones



YES! I would like to subscribe to PC.com

Peninsular Malaysia & East Malaysia

- ☐ 1 YEAR (12 ISSUES) RM114 / RM137(EM) ☐ NORMAL POST (FREE)
☐ 2 YEAR (24 ISSUES) RM203.50 / RM243(EM) ☐ SPECIAL COURIER RM78 / RM96(EM)
☐ RENEW/EXTEND MY CURRENT SUBSCRIPTION USING THIS OFFER

Complete the Slogan in not more than 20 words

I LIKE PC.COM BECAUSE _____

NAME _____

OCCUPATION _____

COMPANY _____

MAILING ADDRESS (PLEASE INDICATE EITHER ☐ HOME OR ☐ OFFICE

POSTCODE _____

NRIC NO _____ AGE _____

MOBILE NUMBER _____ SEX _____

E-MAIL _____

DELIVERY Please allow approximately 4-6 weeks for first issue to be delivered.
CANCELLATION You may cancel at any time and receive a full refund on all
unmailed copies minus RM30.00 for cancellation and processing charges.

PAYMENT DETAILS

☐ MASTERCARD ☐ VISA EXPIRY DATE / /

CREDIT CARD NO:

LAST 3 DIGITS STATED ON BACK OF THE CARD

NAME ON CARD _____

SIGNATURE _____

CHEQUE NO _____

MONEY/POSTAL ORDER NO _____

All cheques must be crossed and made payable to

"Reach Publishing Sdn Bhd"

SIGNATURE _____

MAIL TO: **REACH PUBLISHING SDN BHD**
No. 15-3, Block F1, Jln PJU 1/42,
Dataran Prima, 46500 Petaling Jaya,
Selangor

acer

#keepasking

#1
TOTAL PC SHIPMENT
IN MALAYSIA
from 2006, 2007, 2008, 2009,
2010, 2011, 2012, 2013, 2014,
Q1 & Q2 2015
Source: IDC WW Quarterly PC Tracker, Q2 2015

You can't ask for
work to always
be fun.

But you can ask for
a 2-in-1 that mixes
work with play.



Aspire Switch 10 E

Switch modes with ease from a laptop
to a tablet with a smooth snap.

- Intel® Atom™ processor
- Windows 8.1 with Bing (32-bit)
- Office 365 Personal 1-year.
Activation required within limited time.
- Four Modes: Laptop, Tablet, Display & Tent



ACER
BLUELIGHT SHIELD™



12 HOUR
LONG BATTERY



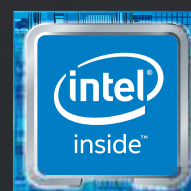
ACER
SNAP HINGE™ 2



ACER
SWITCHLOCK™



TEXTILE
PATTERN



Ask for Intel Inside®

PowerShot

Canon

Delighting You Always

POWERSHOT **G** SERIES

PERFECTED WITH POWER AND POISE



HIGH PERFORMANCE
1.5" CMOS SENSOR

**PowerShot G1X
Mark II**

RM2,859



25X OPTICAL
HIGH ZOOM

New PowerShot G3X
RM3,299



BUILT-IN ELECTRONIC
VIEWFINDER

New PowerShot G5X
RM3,199



COMPACT
ALL-ROUNDER

PowerShot G7X
RM2,119



SLIM & STYLISH

New PowerShot G9X
RM1,999

One of the most iconic series of digital compact cameras, the Canon Powershot G Series further strengthens the line with new additions. With large CMOS sensors for premium image quality and superior technologies such as high zoom range, built-in EVF, and NFC support, there is something for every photography enthusiast.

All prices inclusive of 6% GST

MASTER YOUR POTENTIAL WITH THE **G** SERIES TODAY.

Insist on an original warranty issued by Canon Marketing Malaysia.



CANON MARKETING (MALAYSIA) SDN BHD (158419-H):

HEAD OFFICE & SHOWROOM: Block D, Peremba Square, Saujana Resort, Section U2, 40150 Shah Alam, Selangor Darul Ehsan, Malaysia.

Nationwide Customer Careline: Tel: 1800-88-2000 **General Line:** Tel: 03-7844 6000 Fax: 03-7847 7222 **Website:** www.canon.com.my

BRANCHES:

• **PENANG** Tel: 04-238 3838 • **IPOH** Tel: 05-255 6311 • **MALACCA** Tel: 06-283 8331 • **JOHOR BAHRU** Tel: 07-355 4777
• **KUANTAN** Tel: 09-517 3688 • **KUCHING** Tel: 082-575 188 • **KOTA KINABALU** Tel: 088-233 800

  **canoncamerasia**

CANON IMAGE SQUARE:

• **SURIA KLCC** Tel: 03-2166 2382
• **MID VALLEY** Tel: 03-2282 7037
• **SUNWAY PYRAMID** Tel: 03-5633 1818
• **LOW YAT** Tel: 03-2141 8188
• **PENANG** Tel: 04-262 3191

CANON EOS BOUTIQUE:

• **PENANG** Tel: 04-228 8858
• **SELANGOR** Tel: 03-5612 0337